

A reconstruction of Edward Sang's  
table of logarithmic sines  
and tangents (K43,1888)

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# Introduction

Edward Sang (1805–1890) was probably the greatest calculator of logarithms of the 19th century [5, 16, 17, 18, 30, 42]. Sang spent 40 years computing tables of logarithms and trigonometric functions, with the assistance from his daughters Flora (1838-1925) and Jane (1834-1878). The result fills about 50 manuscript volumes, plus a number of transfer duplicates, which are kept at Edinburgh University Library and at the National Library of Scotland, Edinburgh. I have reconstructed a number of these tables and an overview of the tables and reconstructions can be found in a separate guide [49].

Sang’s purpose was in particular to provide fundamental tables, including for the decimal division of the quadrant. In 1890 [5, p. 189], he wrote that

In addition to the results being accurate to a degree far beyond what can ever be needed in practical matters, [the collection of computations] contains what no work of the kind has contained before, a complete and clear record of all the steps by which those results were reached. Thus we are enabled at once to verify, or if necessary, to correct the record, so making it a standard for all time.

For these reasons it is proposed that the entire collection be acquired by, and preserved in, some official library, so as to be accessible to all interested in such matters; so that future computers may be enabled to extend the work without the need of recomputing what has been already done; and also so that those extracts which are judged to be expedient may be published.

The present volume K43 gives the logarithmic sines and cosines.<sup>1</sup>

## 1 Direct computation of the logarithms of sines

Before Sang worked on the computation of volume K43, he gave a procedure for computing the logarithms of sines in an article published in 1884 [78]. I am summarizing this article here.

Sang recalled that the first tables of logarithms of sines were computed from the sines, in particular by Napier [36, 37, 38, 40, 39, 47]. He stresses that if the computations can be done less laboriously without resorting to the sines, it should be adopted.

Sang refers to formulæ in Jean-François Callet’s 1795 edition of his *Tables portatives* [15, p. 48]. Callet<sup>2</sup> starts with the series

$$\cos a = 1 - \frac{a^2}{2!} + \frac{a^4}{4!} - \frac{a^6}{6!} + \dots$$

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<sup>1</sup>National Library of Scotland, Edinburgh, Acc.10780/53.

<sup>2</sup>Callet, 1744-1798, see Lalande’s *Bibliographie astronomique ; avec l’histoire de l’astronomie depuis 1781 jusqu’à 1802*, 1803, p. 804-805.

and if  $a$  is replaced by  $q = \frac{\pi}{2}$ ,  $\cos a = 0$ . Consequently the series is divisible by  $1 - \frac{a}{q}$ . But since  $\cos(-q) = 0$ , the series is also divisible by  $1 + \frac{a}{q}$ , and therefore by  $1 - \frac{a^2}{q^2}$ . And since  $\cos(3q) = \cos(-3q) = \cos(5q) = \dots = 0$ , we obtain

$$\cos a = \left(1 - \frac{a^2}{q^2}\right) \left(1 - \frac{a^2}{3^2 q^2}\right) \left(1 - \frac{a^2}{5^2 q^2}\right) \left(1 - \frac{a^2}{7^2 q^2}\right) \dots$$

Similarly, one obtains

$$\sin a = a \left(1 - \frac{a^2}{2^2 q^2}\right) \left(1 - \frac{a^2}{4^2 q^2}\right) \left(1 - \frac{a^2}{6^2 q^2}\right) \dots$$

Taking the logarithms of these sums, and expanding  $\ln(1 - x) = -x - \frac{x^2}{2} - \frac{x^3}{3} - \dots$ , we obtain series for  $\ln \sec a$  and  $\ln \frac{a}{\sin a}$ . Unfortunately, these series converge very slowly.<sup>3</sup>

Sang observes that although Callet's result is correct, his reasoning is faulty and essentially takes for granted that the quotient of  $\cos a$  by the product of  $(1 - \frac{a^2}{q^2})(1 - \frac{a^2}{3^2 q^2}) \dots$  tends to 1, which is not proven.

Then Sang obtains the series for  $\ln \sec a$  and  $\ln \frac{a}{\sin a}$  directly:

$$\begin{aligned} \ln \sec a &= \frac{1}{2}a^2 + \frac{1}{2^2 \cdot 3}a^4 + \frac{1}{3^2 \cdot 5}a^6 + \frac{17}{2^3 \cdot 3^2 \cdot 5 \cdot 7}a^8 + \frac{31}{3^4 \cdot 5^2 \cdot 7}a^{10} \\ &\quad + \frac{691}{2 \cdot 3^5 \cdot 5^2 \cdot 7 \cdot 11}a^{12} + \frac{2 \cdot 43 \cdot 127}{3^5 \cdot 5^2 \cdot 7^2 \cdot 11 \cdot 13}a^{14} + \frac{257 \cdot 3617}{2^4 \cdot 3^6 \cdot 5^3 \cdot 7^2 \cdot 11 \cdot 13}a^{16} \\ &\quad + \frac{73 \cdot 43867}{3^8 \cdot 5^3 \cdot 7^2 \cdot 11 \cdot 13 \cdot 17}a^{18} + \frac{31 \cdot 41 \cdot 283 \cdot 617}{2 \cdot 3^8 \cdot 5^4 \cdot 7^2 \cdot 11 \cdot 13 \cdot 17 \cdot 19}a^{20} + \dots \\ \ln \frac{a}{\sin a} &= \frac{1}{2 \cdot 3}a^2 + \frac{1}{2^2 \cdot 3^2 \cdot 5}a^4 + \frac{1}{3^4 \cdot 5 \cdot 7}a^6 + \frac{1}{2^3 \cdot 3^3 \cdot 5^2 \cdot 7}a^8 + \frac{1}{3^5 \cdot 5^2 \cdot 7 \cdot 11}a^{10} \\ &\quad + \frac{691}{2 \cdot 3^7 \cdot 5^3 \cdot 7^2 \cdot 11 \cdot 13}a^{12} + \frac{2}{3^6 \cdot 5^2 \cdot 7^2 \cdot 11 \cdot 13}a^{14} + \frac{3617}{2^4 \cdot 3^7 \cdot 5^4 \cdot 7^2 \cdot 11 \cdot 13 \cdot 17}a^{16} \\ &\quad + \frac{43867}{3^{11} \cdot 5^3 \cdot 7^3 \cdot 11 \cdot 13 \cdot 17 \cdot 19}a^{18} + \frac{283 \cdot 617}{2 \cdot 3^9 \cdot 5^6 \cdot 7^2 \cdot 11^2 \cdot 13 \cdot 17 \cdot 19}a^{20} + \dots \end{aligned}$$

As far as I know, these expressions have not been given before Sang, but Callet expressed the terms as sums of the reciprocals of even powers [15, p. 49]. For instance, for the first series, he basically wrote that

$$\ln \sec a = \sum_{n=1}^{\infty} \left( \sum_{i=0}^{\infty} \frac{1}{(2i+1)^{2n}} \right) \times \frac{2^{2n}}{n\pi^{2n}} a^{2n}$$

or rather he gave a series for  $\text{Log} \cos \left( \frac{m}{n} \cdot \frac{\pi}{2} \right)$  where  $\text{Log}$  is a generic logarithm, and he used  $k$  for the modulus (in our case  $k = 1/\ln 10$ ).

Now, using these sums, Sang could write, multiplying the previous values by the modulus  $M = 1/\ln 10$ :

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<sup>3</sup>Yet, these are the series used by Andoyer for the table of logarithms of sines and tangents published in 1911 [1].

$$\begin{aligned}
\log \sec a &= 0.21714724095162591383 \times a^2 \\
&+ 0.03619120682527098564 \times a^4 \\
&+ 0.00965098848673892950 \times a^6 \\
&+ 0.00292976436204574646 \times a^8 \\
&+ 0.00094977981932986290 \times a^{10} \\
&+ 0.00032077119020378068 \times a^{12} \\
&+ 0.00011143152746952792 \times a^{14} \\
&+ 0.00003951630255383690 \times a^{16} \\
&+ 0.00001423587009856471 \times a^{18} \\
&+ 0.00000519262273891936 \times a^{20} \\
&+ \dots \\
\log \frac{a}{\sin a} &= 0.07238241365054197128 \times a^2 \\
&+ 0.00241274712168473238 \times a^4 \\
&+ 0.00015319029344030047 \times a^6 \\
&+ 0.00001148927200802254 \times a^8 \\
&+ 0.00000092842602085031 \times a^{10} \\
&+ 0.00000007833240298017 \times a^{12} \\
&+ 0.00000000680165583041 \times a^{14} \\
&+ 0.00000000060298012595 \times a^{16} \\
&+ 0.00000000005430574190 \times a^{18} \\
&+ 0.00000000000495207566 \times a^{20} \\
&+ \dots
\end{aligned}$$

Callet had given similar series up to the 24th power [15, p. 50]:

$$\begin{aligned}
\text{Log} \cos \left( \frac{m}{n} \cdot \frac{\pi}{2} \right) &= -k \frac{m^2}{n^2} \times 1.233700550136 \dots - \dots \\
\text{Log} \sin \left( \frac{m}{n} \cdot \frac{\pi}{2} \right) &= \text{Log } m - \text{Log } n + k \ln \frac{\pi}{2} - k \frac{m^2}{n^2} \times 0.411233516 \dots - \dots
\end{aligned}$$

where  $1.233700550136 \dots = \frac{1}{2} \cdot \frac{\pi^2}{2^2}$ , and  $0.411233516 \dots = \frac{1}{6} \cdot \frac{\pi^2}{2^2}$ , etc.

In Sang's numerical expressions,  $0.2171472409516 \dots = \frac{1}{2} \cdot \frac{1}{\ln 10}$ ,  $0.0723824136505 \dots = \frac{1}{6} \cdot \frac{1}{\ln 10}$ , and therefore  $\frac{1.233700550136 \dots}{0.2171472409516 \dots} = \frac{\pi^2}{2^2} \cdot \ln 10$ .

Sang however observed that these series are inconvenient and can only be used with small arcs. He then concluded that using these series "would entail more labour than the simple plan of deducing the logarithm from the sine." He therefore turned to the method expounded in section 3.

## 2 An additional note from 1885

In a note dated 25 april and 22 may 1885,<sup>4</sup> Sang gave a scheme for the computation of the logarithms of sines. Sang started with the general formula

$$\sin a = \frac{\sin 2a}{2 \cdot \cos a}$$

and observed that the  $\log \sin$  of the lower half of the quadrant can be obtained from the upper half:

$$\sin a = \frac{\sin 2a}{2 \cdot \sin(100^\circ - a)}$$

where  $100^\circ$  is the centesimal angle for the quadrant. Once  $\log \sin 100^\circ$  to  $\log \sin 50^\circ$  are obtained, the next values  $\log \sin 49^\circ$ ,  $\log \sin 48^\circ$ , etc., can be obtained with

$$\begin{aligned}\log \sin 49^\circ &= \log \sin 98^\circ - \log 2 - \log \sin 51^\circ \\ \log \sin 48^\circ &= \log \sin 96^\circ - \log 2 - \log \sin 52^\circ\end{aligned}$$

and so on.

Similarly, the values of  $\log \tan$  are easily derived, as well as the differences for  $\log \sin$  and  $\log \tan$ . The details are given in the next section.

According to Sang, this process gives more accurate values of  $\log \sin$  for small angles, than a direct process.

## 3 The procedure actually used

A summary of Sang's procedure was given in the account drawn up in November 1890 [5, p. 188], but Sang gave more details in a seven page notice introducing his table of logarithmic sines and tangents.<sup>5</sup> Sang wrote that

The following tables are founded on the Canon of Sines to fifteen places (1881)<sup>6</sup> which had been shortened from scroll calculations to 18 places, and which are expected to be true throughout to within 0.503 in the fifteenth place. The logarithms of these sines from  $\sin 100^\circ$  to  $\sin 50^\circ$  were computed by help of the fifteen-place logarithms of numbers from 100000 to 370000 (1878),<sup>7</sup> using the auxiliary table (1884).<sup>8</sup>

For this, the actual sines were divided by 3 or by 2 as such might be to bring the quotient within the range of the table, that quotient was then divided by

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<sup>4</sup>National Library of Scotland, Edinburgh, Acc.10780/78.

<sup>5</sup>National Library of Scotland, Edinburgh, Acc.10780/53.

<sup>6</sup>These are the tables contained in volumes K41 and K42, see my reconstruction [60].

<sup>7</sup>See the reconstruction of the logarithms of numbers to 15 places [56].

<sup>8</sup>See my reconstruction of the auxiliary table [57].

the number formed of the first six of its digits, and the logarithm of this new quotient was then got directly from the auxiliary table.<sup>9</sup>

Beginning with 99°99' and descending, the computed logarithms were written, in order, on an aside-paper, their first, second and third differences being taken as the work progressed, and, whenever an irregularity appeared in the third differences, the logarithm was re-computed. Now the logarithmic canon, from the nature of its construction, is liable to an uncertainty of 2, hardly of 3, units in the last place so that our log sines can hardly have an uncertainty of less than 4, or say even 5 units in the 15th place. But a change of 5 in the function causes changes of  $-5$ ,  $+15$ ,  $-15$ ,  $+5$  in the third differences so that if, of two consecutive logarithms, one were 5 in excess, the other, 5 in defect, an error of 30 would appear in the column of third differences; so that an irregularity of less than 30 does not necessarily imply an error in calculation. When occasion arose, the true third difference was computed from the formula<sup>10</sup>

$$\Delta^3 \log \sin a = \frac{\cos a}{\sin^3 a} \times 10^{3.5271739}.$$

The aside-paper having been thus filled up, the last differences were carefully inspected, and, whenever it was seen that a change of 1, 2 or even 3 units in the function would improve the sequence of the differences, that change was marked in red ink, as also were the consequent changes in the last column. Thereafter the so corrected functions were copied on the present pages, but the differences were anew computed from the numbers as actually written; in this way a complete check was had on the accuracy of the work. This work was likewise a severe test of the truthfulness of the Canon of Sines and of Logarithms, in which no symptom of an error was found.

The second part of the Canon, that is from 50° to 0, was constructed essentially according to the process used by Nepair for his Wonder-Working

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<sup>9</sup>For instance, if we compute  $\log \sin 70^\circ$ , the table of sines gives the value 0.891006524188368, this value is divided by 3 to bring it below 0.370000:

$$\log \sin 70^\circ = \log 0.297002174729456 + \log 3$$

But  $0.297002174729456 = \frac{0.297002174729456}{297002} \times 297002 = 0.000001000000588 \dots \times 297002 = 10^{-6} \times 1.000000588 \times 297002$  and  $\log 0.297002174729456 = \log 1.000000588 + \log 297002 - 6$ . Then, the auxiliary table gives  $\log 1.000000588 = 0.000000255365080$ , and eventually  $\log \sin 70^\circ = 0.477121254719662 + 0.000000255365080 + 5.472759373849331 - 6 = -0.050119116065927$ , and  $10 + \log \sin 70^\circ = 9.949880883934073$ , whereas the correct value is 9.949880884069011. The discrepancy is due to the fact that the quotient 0.000001000000588 was truncated. A more accurate value can be obtained by interpolation and we would have to add 0.000000000134935 to the above result, reaching  $-0.050119115930992$  and hence a tabulated value of 9.949880884069008, which is off by 3 units of the 15th place. This does of course ignore the errors in the logarithms of numbers mentioned by Sang below.

<sup>10</sup>This somewhat mysterious formula gives an approximation of the third difference in units of the 15th place. It can be established by help of the formulæ used in the computation of the *Cadastre* tables [48, p. 81]. Sang may have used the description of the tables by Lefort [31], or he may have established the results himself. In any case, we have  $\Delta^3 \log \sin a \approx 2M(\cot a + \cot^3 a) \times \left(\frac{0.01}{100} \times \frac{\pi}{2}\right)^3$ . Observing that  $\cot a + \cot^3 a = \frac{\cos a}{\sin^3 a}$  and scaling this expression by  $10^{15}$ , we obtain Sang's formula because  $\log \left[2M \left(\frac{0.01}{100} \times \frac{\pi}{2}\right)^3 \times 10^{15}\right] = 3.5271739 \dots$

Canon,<sup>11</sup> with expedients however, for saving labour and for securing accuracy. The log-sine of any arc less than the half-quadrant may be got from the log-sines in the other half by help of the formula

$$\sin a = \frac{1}{2} \sin 2a \cdot \sec a,$$

and its log-tangent by help of the additional formula

$$\tan a = \sin a \cdot \sec a;$$

Having written the logarithm of  $\frac{1}{2}$  on the lower edge of a card, and placed that card in position on the aside-paper, we write below, first the logarithm of the double arc, next the log-secant of the single arc (which is the arithmetical complement of the log-sine of the arc's complement), and the sum of these three is the log-sine of the proposed arc. Again by adding to this the same log-secant, we obtain the log-tangent sought for. Thus, for the arc  $42^\circ 80'$ , the computation is as under:<sup>12</sup>

	9.6989	70004	336019	$\log \frac{1}{2}$
85°60'	9.9887	93819	381819	$\log \sin 2a$
57 20	0.1065	76259	114265	$\log \sec a$
	<hr/>	<hr/>	<hr/>	
42 80	9.7943	40082	832103	$\log \sin a$
	9.9009	16341	946368	$\log \tan a$

If this process alone were followed, each result would be independent of the others, and the only expedient for verification would be by repeating the work; this again would need to be done by another computer in order to avoid the well known risk of falling into the same mistake even after a long lapse of time. Actually these calculations were made only for each tenth minute, in order to serve for verification; the computation from minute to minute being made by help of differences, in the following manner.

In computing downwards, say from  $42^\circ 80'$ , we observe<sup>13</sup> that the difference of the log-sines of  $42^\circ 80'$  and  $42^\circ 79'$ , is the sum of the differences for log-sines  $85^\circ 60'$  and  $85^\circ 58'$  and for those of  $57^\circ 20'$  and  $57^\circ 21'$ . Now we readily get the former by taking the sum of the two contiguous differences already written in the preceding part of the table, while the latter is to hand. Hence the work is easily arranged as under:<sup>14</sup>

<sup>11</sup>See [36, 37, 38, 40, 39, 47].

<sup>12</sup>I have kept Sang's values, but the last figures are sometimes off by 1. Note that Sang writes the angle  $100^\circ - 42^\circ 80'$  left of  $\log \sec a = -\log \sin(100^\circ - 42^\circ 80')$ .

<sup>13</sup>This follows from

$$\frac{\sin x}{\sin(x - \Delta x)} = \frac{\sin 2x}{\sin 2(x - \Delta x)} \times \frac{\cos(x - \Delta x)}{\cos x}$$

which is easily checked.

<sup>14</sup>The column on the right contains the first differences which are added to obtain new first differences. For instance,  $31421\ 365585 + 54293\ 836215 = 85715\ 201800$ . Like above, some of the last figures are off by 1, but I did not correct them.



Log-sines					
4280	9.7943	40082	832103	31421	365585
		85715	201800	54293	836215
4279	9.7942	54367	630303	31466	505349
		85742	840356	54276	335007
4278	9.7941	68624	789947	31511	651651
		85770	489825	54258	838174
4277	9.7940	82854	300122	31556	804511
		85798	150223	54241	345712
4276	9.7939	97056	149899		

an so on until we reach the logsine of 4270, which should agree with that found by the direct method. Yet this agreement does not give complete assurance of the accuracy of the intermediate work, because an error in one direction may happen to be balanced by another error in the opposite direction. Therefore the logsines only were copied on the actual table, and the differences were thence set down by actual subtraction.

The arrangement for the logtangents is even simpler, for we get their differences by augmenting each difference already found from the logsines by the corresponding difference from the logcosines; and, although these be not placed the one under the other, a very ordinary computer finds no difficulty in adding them as they stand. Thus, for the same arcs, the computation of the logtangents is<sup>15</sup>

Log tangents			
4280	9.9009	16341	946368
		1	40009
4279	9.9007	76332	908353
		1	40019
4278	9.9006	36313	732990
		1	40029
4277	9.9004	96284	404991
		1	40039
4276	9.9003	56244	909056

and the same precautions were taken, while copying these upon the actual pages, as were used in the case of the logsines.

Since the logtangents for the other half of the quadrant are the arithmetical complements of these,<sup>16</sup> it would be mere waste of labour to write them out in a preliminary table like the present.

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<sup>15</sup>The values of the log tan are also usually off by 1 in the last place.

<sup>16</sup>*i.e.*,  $\log \tan(100^\circ - x) = -\log \tan x$ .

The fifteen decimals are here spaced in groups of four, five and six figures as in the canon of logarithms, to suit the proposed nine place table to one million.<sup>17</sup> In order to match this, the trigonometrical table should be extended by interpolation at least to each tenth second of arc.

In proceeding so to interpolate, we observe that if  $\Delta_1$ ,  $\Delta_2$ ,  $\Delta_3$  represent the first, second and third differences as we have found them,  $\delta_1$ ,  $\delta_2$ ,  $\delta_3$ , those for intervals ten times smaller, we have<sup>18</sup>

$$\delta_1 = \frac{1}{10}\Delta_1 - \frac{9}{200}\Delta_2 + \frac{57}{2000}\Delta_3 \mid \delta_2 = \frac{1}{100}\Delta_2 - \frac{18}{2000}\Delta_3 \mid \delta_3 = \frac{1}{1000}\Delta_3.$$

The successive values, found by the application of these differences being at 10  $L$

$$\begin{aligned} \text{at } 9 & L - \frac{1}{10}\Delta_1 + \frac{9}{200}\Delta_2 - \frac{57}{2000}\Delta_3, \\ \text{at } 8 & L - \frac{2}{10}\Delta_1 + \frac{16}{200}\Delta_2 - \frac{96}{2000}\Delta_3, \\ \text{at } 7 & L - \frac{3}{10}\Delta_1 + \frac{21}{200}\Delta_2 - \frac{119}{2000}\Delta_3, \\ \text{at } 6 & L - \frac{4}{10}\Delta_1 + \frac{24}{200}\Delta_2 - \frac{128}{2000}\Delta_3, \\ \text{at } 5 & L - \frac{5}{10}\Delta_1 + \frac{25}{200}\Delta_2 - \frac{125}{2000}\Delta_3, \\ \text{at } 4 & L - \frac{6}{10}\Delta_1 + \frac{24}{200}\Delta_2 - \frac{112}{2000}\Delta_3, \\ \text{at } 3 & L - \frac{7}{10}\Delta_1 + \frac{21}{200}\Delta_2 - \frac{91}{2000}\Delta_3, \\ \text{at } 2 & L - \frac{8}{10}\Delta_1 + \frac{16}{200}\Delta_2 - \frac{64}{2000}\Delta_3, \\ \text{at } 1 & L - \frac{9}{10}\Delta_1 + \frac{9}{200}\Delta_2 - \frac{33}{2000}\Delta_3, \text{ and} \\ \text{at } 0 & L - \Delta_1 \end{aligned}$$

from which we see that the greatest correction from second differences is  $\frac{1}{8}\Delta_2$ , while the maximum correction for third differences is less than the sixteenth part of  $\Delta_3$ .

The introduction to this volume abruptly ends here.

## 4 Content of Sang's tables

Volume K43 was completed in 1888 and contains logarithmic sines and tangents. Sang's table is a handwritten table, but it is preceded by a printed cover page (figure 1), perhaps meant to be published.

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<sup>17</sup>See my (re)construction of the nine-place table where this spacing is used [43], as well as in the reconstruction of the 15-place table [56].

<sup>18</sup>The subtabulated values of the function are obtained using Newton's forward difference formula:

$$z_x = A + x\Delta_1 + x \cdot \frac{x-1}{2}\Delta_2 + x \cdot \frac{x-1}{2} \cdot \frac{x-3}{3}\Delta_3 + \dots$$

In this case, one should consider that the differences are  $-\Delta_1$ ,  $-\Delta_2$  and  $-\Delta_3$  and that  $x$  takes up the values  $1/10$  to  $9/10$ . We then obtain the expressions given by Sang, which for some reason go backwards. The value of  $\delta_1$  is the difference between  $z_{0.1}$  and  $z_0$  and should actually be of opposite sign for consistency. The values of  $\delta_2$  and  $\delta_3$  are easy to compute, but Sang had incorrectly written  $\delta_2 = \frac{1}{100}\Delta_2 - \frac{19}{2000}\Delta_3$ . See my reconstruction of Briggs's 1624 table for details [45].

In the summary of his tables drawn in July 1890 [81, 5], Sang writes that “[U]pwards of two million eight hundred thousand figures were written for the completion of this volume.”

There are actually three separate tables, each spanning 125 pages. The first part gives the values of  $10 + \log \sin x$  for centesimal angles from  $100^\circ$  to  $50^\circ$  and their differences.

The second part gives the values of  $10 + \log \sin x$  for centesimal angles from  $50^\circ$  to  $0.01^\circ$  and their differences.

The third part gives the values of  $10 + \log \tan x$  for centesimal angles from  $50^\circ$  to  $0.01^\circ$  and their differences.

Each part contains 41 values per page, with the last value of a page being identical to the first on the next page. Sang’s values of the logarithms of sines are correct to one or two units of the 15th place at the beginning of the table (starting at  $100^\circ$ ), but the errors grow up to 15 units around  $0^\circ$ . The logarithms of tangents are similarly off up to two or three units of the 15th place at the beginning of the range (at  $50^\circ$ ), and the errors grow up to 13 units or more at the end of range.

My reconstruction tries to follow faithfully the original tables, but there are some uncertainties, for instance regarding when the sizes of the prefixes of the logarithms of sines change. The prefixes start with 0.9999, but are later cut to three and two digits, perhaps not exactly when Sang did it. Sang may possibly not even have used a three-place prefix.

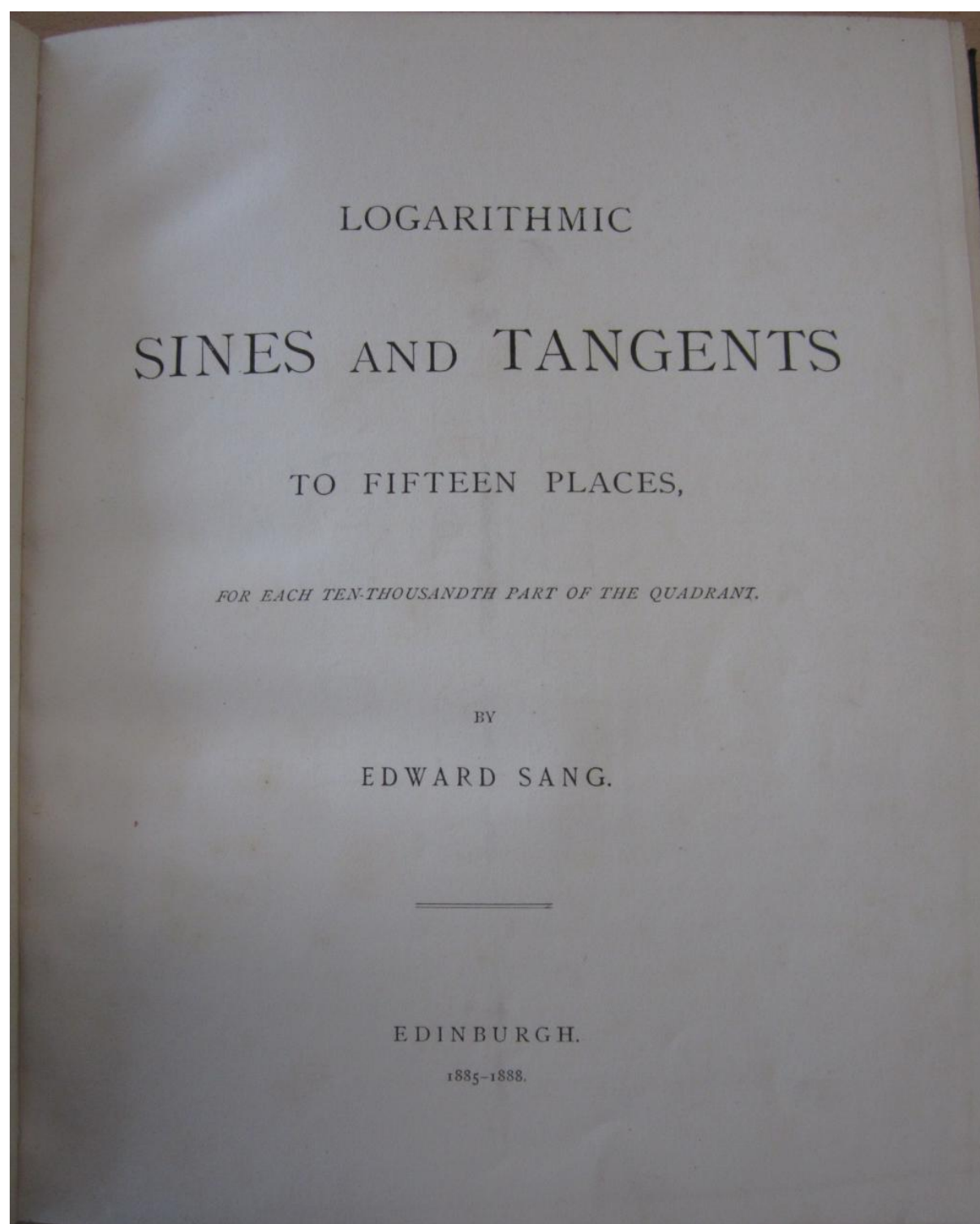


Figure 1: A projected title page for the logarithms of sines and tangents. (Courtesy Edinburgh University Library, photograph by the author)

*Log Sines.*

49 60	9.8467	39081	929412	.0000	69092	365767
59	9.8466	69939	563645		69114	076986
58	9.8466	00825	486659		69135	795116
57	9.8465	31689	691543		69157	520161
56	9.8464	62532	171382		69179	252127
49 55	9.8463	93352	919255	.0000	69200	991016
54	9.8463	24151	928239		69222	736837
53	9.8462	54929	191402		69244	489589
52	9.8461	85684	701813		69266	249277
51	9.8461	16418	452536		69288	015911
49 50	9.8460	47130	436625	.0000	69309	789489
49	9.8459	77820	647136		69331	570022
48	9.8459	08489	077114		69353	357502
47	9.8458	39135	719612		69375	151946
46	9.8457	69760	567666		69396	953354
49 45	9.8457	00363	614312	.0000	69418	761733
44	9.8456	30944	852579		69440	577088
43	9.8455	61504	275291		69462	399410
42	9.8454	92041	876081		69484	228719
41	9.8454	22557	647362		69506	065013
49 40	9.8453	53051	582349	.0000	69527	908301
39	9.8452	83523	674048		69549	758578
38	9.8452	13973	915470		69571	615864
37	9.8451	44402	299606		69593	480145
36	9.8450	74908	919461		69615	351440
49 35	9.8450	05193	468021	.0000	69637	229745
34	9.8449	35226	238276		69659	115066
33	9.8448	65897	123210		69681	007413
32	9.8447	96216	115797		69702	906784
31	9.8447	26513	209013		69724	813184
49 30	9.8446	56788	395829	.0000	69746	726624
29	9.8445	87041	669205		69768	647036
28	9.8445	17273	022109		69790	574616
27	9.8444	47492	447493		69812	509187
26	9.8443	77669	926306		69834	450811
49 25	9.8443	07835	487495	.0000	69856	399493
24	9.8442	37979	088002		69878	355230
23	9.844	68100	732772		69900	318038
22	9.8440	9820	414734		69922	287922
21	9.8440	28278	126812		69944	264873
49 20	9.8439	58333	861939	.0000	69966	248908

127.

Figure 2: Excerpt from Sang's table of logarithms of sines. (Courtesy Edinburgh University Library)



*Log Tangents.*

49 60	9.9945	42350	943175	.0001	36448	600372
59	9.9944	05902	262803	1	36449	232551
58	9.9942	69453	030252	1	36449	798199
57	9.9941	33003	252053	1	36450	377318
56	9.9939	96552	854735	1	36450	969911
49 55	9.9938	60101	884824	.0001	36451	575974
54	9.9937	23650	308050	1	36452	195514
53	9.9935	87198	113336	1	36452	828523
52	9.9934	50745	284818	1	36453	475004
51	9.9933	14291	809809	1	36454	134964
49 50	9.9931	77837	674045	.0001	36454	808395
49	9.9930	41382	966450	1	36455	495305
48	9.9929	04927	371145	1	36456	195679
47	9.9927	68471	175466	1	36456	909532
46	9.9926	32014	265934	1	36457	636863
49 45	9.9924	95556	629071	.0001	36458	377675
44	9.9923	59098	251396	1	36459	131963
43	9.9922	22639	119433	1	36459	899714
42	9.9920	86179	219719	1	36460	680950
41	9.9919	49718	538769	1	36461	475661
49 40	9.9918	13257	063108	.0001	36462	283853
39	9.9916	76794	779255	1	36463	105518
38	9.9915	40331	673737	1	36463	940673
37	9.9914	03867	733064	1	36464	783294
36	9.9912	67402	943770	1	36465	651401
49 35	9.9911	30937	292369	.0001	36466	526985
34	9.9909	94470	765384	1	36467	416048
33	9.9908	58003	349336	1	36468	318597
32	9.9907	21535	030739	1	36469	234623
31	9.9905	85065	796116	1	36470	164130
49 30	9.9904	48595	631986	.0001	36471	107124
29	9.9903	12124	524862	1	36472	063588
28	9.9901	75652	461274	1	36473	033543
27	9.9900	39179	427731	1	36474	016983
26	9.9899	02705	410748	1	36475	013909
49 25	9.9897	66230	396839	.0001	36476	024320
24	9.9896	29754	372519	1	36477	048204
23	9.9894	93277	324315	1	36478	085579
22	9.9893	56799	238736	1	36479	136449
21	9.9892	20320	102287	1	36480	200792
49 20	9.9890	93839	901495	.0001	36481	278628

253.

Figure 3: Excerpt from Sang's table of logarithms of tangents. (Courtesy Edinburgh University Library)

## References

The following list covers the most important references<sup>19</sup> related to Sang’s table. Not all items of this list are mentioned in the text, and the sources which have not been seen are marked so. I have added notes about the contents of the articles in certain cases.

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<sup>19</sup>**Note on the titles of the works:** Original titles come with many idiosyncrasies and features (line splitting, size, fonts, etc.) which can often not be reproduced in a list of references. It has therefore seemed pointless to capitalize works according to conventions which not only have no relation with the original work, but also do not restore the title entirely. In the following list of references, most title words (except in German) will therefore be left uncapitalized. The names of the authors have also been homogenized and initials expanded, as much as possible.

The reader should keep in mind that this list is not meant as a facsimile of the original works. The original style information could no doubt have been added as a note, but I have not done it here.

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**TABLE 1:**  $\log \sin$  from  $100^\circ$  to  $50^\circ$

## Log Sines

c	log. sin.		$\Delta^1$	$\Delta^2$	$\Delta^3$
	9.9999				
00 00		000000	5 357893	10 715788	−1
99 99	99994	642107	16 073681	10 715787	3
	99978	568426	26 789468	10 715790	1
	99951	778958	37 505258	10 715791	2
	99914	273700	48 221049	10 715793	4
99 95	99866	052651	58 936842	10 715797	3
	99807	115809	69 652639	10 715800	3
	99737	463170	80 368439	10 715803	6
	99657	094731	91 084242	10 715809	3
	99566	010489	101 800051	10 715812	8
99 90	99464	210438	112 515863	10 715820	5
	99351	694575	123 231683	10 715825	6
	99228	462892	133 947508	10 715831	8
	99094	515384	144 663339	10 715839	8
	98949	852045	155 379178	10 715847	6
99 85	98794	472867	166 095025	10 715853	12
	98628	377842	176 810878	10 715865	6
	98451	566964	187 526743	10 715871	12
	98264	040221	198 242614	10 715883	10
	98065	797607	208 958497	10 715893	10
99 80	97856	839110	219 674390	10 715903	12
	97637	164720	230 390293	10 715915	12
	97406	774427	241 106208	10 715927	12
	97165	668219	251 822135	10 715939	13
	96913	846084	262 538074	10 715952	13
99 75	96651	308010	273 254026	10 715965	15
	96378	053984	283 969991	10 715980	15
	96094	083993	294 685971	10 715995	13
	95799	398022	305 401966	10 716008	18
	95493	996056	316 117974	10 716026	14
99 70	95177	878082	326 834000	10 716040	18
	94851	044082	337 550040	10 716058	17
	94513	494042	348 266098	10 716075	17
	94165	227944	358 982173	10 716092	20
	93806	245771	369 698265	10 716112	16
99 65	93436	547506	380 414377	10 716128	22
	93056	133129	391 130505	10 716150	18
	92665	002624	401 846655	10 716168	21
	92263	155969	412 562823	10 716189	21
	91850	593146	423 279012	10 716210	22
99 60	91427	314134	433 995222	10 716232	21
	9.9999				



## Log Sines

c	log. sin.	$\Delta^1$	$\Delta^2$	$\Delta^3$
	9.9999			
99 60	91427 314134	433 995222	10 716232	21
59	90993 318912	444 711454	10 716253	22
58	90548 607458	455 427707	10 716275	24
57	90093 179751	466 143982	10 716299	24
56	89627 035769	476 860281	10 716323	23
99 55	89150 175488	487 576604	10 716346	25
54	88662 598884	498 292950	10 716371	25
53	88164 305934	509 009321	10 716396	25
52	87655 296613	519 725717	10 716421	28
51	87135 570896	530 442138	10 716449	25
99 50	86605 128758	541 158587	10 716474	28
49	86063 970171	551 875061	10 716502	28
48	85512 095110	562 591563	10 716530	28
47	84949 503547	573 308093	10 716558	28
46	84376 195454	584 024651	10 716586	30
99 45	83792 170803	594 741237	10 716616	30
44	83197 429566	605 457853	10 716646	31
43	82591 971713	616 174499	10 716677	30
42	81975 797214	626 891176	10 716707	32
41	81348 906038	637 607883	10 716739	31
99 40	80711 298155	648 324622	10 716770	34
39	80062 973533	659 041392	10 716804	32
38	79403 932141	669 758196	10 716836	34
37	78734 173945	680 475032	10 716870	35
36	78053 698913	691 191902	10 716905	32
99 35	77362 507011	701 908807	10 716937	38
34	76660 598204	712 625744	10 716975	34
33	75947 972460	723 342719	10 717009	37
32	75224 629741	734 059728	10 717046	37
31	74490 570013	744 776774	10 717083	36
99 30	73745 793239	755 493857	10 717119	39
29	72990 299382	766 210976	10 717158	38
28	72224 088406	776 928134	10 717196	39
27	71447 160272	787 645330	10 717235	39
26	70659 514942	798 362565	10 717274	41
99 25	69861 152377	809 079839	10 717315	39
24	69052 072538	819 797154	10 717354	41
23	68232 275384	830 514508	10 717395	43
22	67401 760876	841 231903	10 717438	41
21	66560 528973	851 949341	10 717479	43
99 20	65708 579632	862 666820	10 717522	42
	9.9999			

## Log Sines

c	log. sin.	$\Delta^1$	$\Delta^2$	$\Delta^3$
	9.9999			
99 20	65708 579632	862 666820	10 717522	42
19	64845 912812	873 384342	10 717564	46
18	63972 528470	884 101906	10 717610	42
17	63088 426564	894 819516	10 717652	45
16	62193 607048	905 537168	10 717697	46
99 15	61288 069880	916 254865	10 717743	45
14	60371 815015	926 972608	10 717788	47
13	59444 842407	937 690396	10 717835	47
12	58507 152011	948 408231	10 717882	46
11	57558 743780	959 126113	10 717928	49
99 10	56599 617667	969 844041	10 717977	48
09	55629 773626	980 562018	10 718025	49
08	54649 211608	991 280043	10 718074	50
07	53657 931565	1001 998117	10 718124	48
06	52655 933448	1012 716241	10 718172	53
99 05	51643 217207	1023 434413	10 718225	50
04	50619 782794	1034 152638	10 718275	52
03	49585 630156	1044 870913	10 718327	51
02	48540 759243	1055 589240	10 718378	53
01	47485 170003	1066 307618	10 718431	54
99 00	46418 862385	1077 026049	10 718485	53
98 99	45341 836336	1087 744534	10 718538	55
98	44254 091802	1098 463072	10 718593	54
97	43155 628730	1109 181665	10 718647	55
96	42046 447065	1119 900312	10 718702	56
98 95	40926 546753	1130 619014	10 718758	57
94	39795 927739	1141 337772	10 718815	56
93	38654 589967	1152 056587	10 718871	58
92	37502 533380	1162 775458	10 718929	58
91	36339 757922	1173 494387	10 718987	59
98 90	35166 263535	1184 213374	10 719046	57
89	33982 050161	1194 932420	10 719103	61
88	32787 117741	1205 651523	10 719164	60
87	31581 466218	1216 370687	10 719224	60
86	30365 095531	1227 089911	10 719284	62
98 85	29138 005620	1237 809195	10 719346	60
84	27900 196425	1248 528541	10 719406	64
83	26651 667884	1259 247947	10 719470	62
82	25392 419937	1269 967417	10 719532	63
81	24122 452520	1280 686949	10 719595	64
98 80	22841 765571	1291 406544	10 719659	64
	9.9999			

## Log Sines

c	log. sin.	$\Delta^1$	$\Delta^2$	$\Delta^3$
	9.9999			
98 80	22841 765571	1291 406544	10 719659	64
79	21550 359027	1302 126203	10 719723	65
78	20248 232824	1312 845926	10 719788	66
77	18935 386898	1323 565714	10 719854	64
76	17611 821184	1334 285568	10 719918	69
98 75	16277 535616	1345 005486	10 719987	64
74	14932 530130	1355 725473	10 720051	70
73	13576 804657	1366 445524	10 720121	67
72	12210 359133	1377 165645	10 720188	68
71	10833 193488	1387 885833	10 720256	70
98 70	09445 307655	1398 606089	10 720326	69
69	08046 701566	1409 326415	10 720395	70
68	06637 375151	1420 046810	10 720465	71
67	05217 328341	1430 767275	10 720536	71
66	03786 561066	1441 487811	10 720607	72
98 65	02345 073255	1452 208418	10 720679	71
64	00892 864837	1462 929097	10 720750	75
63	99429 935740	1473 649847	10 720825	71
62	97956 285893	1484 370672	10 720896	76
61	96471 915221	1495 091568	10 720972	72
98 60	94976 823653	1505 812540	10 721044	76
59	93471 011113	1516 533584	10 721120	76
58	91954 477529	1527 254704	10 721196	75
57	90427 222825	1537 975900	10 721271	77
56	88889 246925	1548 697171	10 721348	77
98 55	87340 549754	1559 418519	10 721425	77
54	85781 131235	1570 139944	10 721502	79
53	84210 991291	1580 861446	10 721581	78
52	82630 129845	1591 583027	10 721659	78
51	81038 546818	1602 304686	10 721737	82
98 50	79436 242132	1613 026423	10 721819	78
49	77823 215709	1623 748242	10 721897	82
48	76199 467467	1634 470139	10 721979	81
47	74564 997328	1645 192118	10 722060	82
46	72919 805210	1655 914178	10 722142	81
98 45	71263 891032	1666 636320	10 722223	84
44	69597 254712	1677 358543	10 722307	83
43	67919 896169	1688 080850	10 722390	85
42	66231 815319	1698 803240	10 722475	82
41	64533 012079	1709 525715	10 722557	87
98 40	62823 486364	1720 248272	10 722644	85
	9.9998			

## Log Sines

c	log. sin.	$\Delta^1$	$\Delta^2$	$\Delta^3$
	9.9998			
98 40	62823 486364	1720 248272	10 722644	85
39	61103 238092	1730 970916	10 722729	86
38	59372 267176	1741 693645	10 722815	86
37	57630 573531	1752 416460	10 722901	87
36	55878 157071	1763 139361	10 722988	88
98 35	54115 017710	1773 862349	10 723076	89
34	52341 155361	1784 585425	10 723165	87
33	50556 569936	1795 308590	10 723252	91
32	48761 261346	1806 031842	10 723343	88
31	46955 229504	1816 755185	10 723431	91
98 30	45138 474319	1827 478616	10 723522	90
29	43310 995703	1838 202138	10 723612	93
28	41472 793565	1848 925750	10 723705	91
27	39623 867815	1859 649455	10 723796	92
26	37764 218360	1870 373251	10 723888	93
98 25	35893 845109	1881 097139	10 723981	93
24	34012 747970	1891 821120	10 724074	96
23	32120 926850	1902 545194	10 724170	92
22	30218 381656	1913 269364	10 724262	96
21	28305 112292	1923 993626	10 724358	96
98 20	26381 118666	1934 717984	10 724454	95
19	24446 400682	1945 442438	10 724549	98
18	22500 958244	1956 166987	10 724647	96
17	20544 791257	1966 891634	10 724743	98
16	18577 899623	1977 616377	10 724841	99
98 15	16600 283246	1988 341218	10 724940	98
14	14611 942028	1999 066158	10 725038	99
13	12612 875870	2009 791196	10 725137	100
12	10603 084674	2020 516333	10 725237	100
11	08582 568341	2031 241570	10 725337	102
98 10	06551 326771	2041 966907	10 725439	100
09	04509 359864	2052 692346	10 725539	104
08	02456 667518	2063 417885	10 725643	100
07	00393 249633	2074 143528	10 725743	104
06	98319 106105	2084 869271	10 725847	103
98 05	96234 236834	2095 595118	10 725950	106
04	94138 641716	2106 321068	10 726056	102
03	92032 320648	2117 047124	10 726158	107
02	89915 273524	2127 773282	10 726265	104
01	87787 500242	2138 499547	10 726369	108
98 00	85649 000695	2149 225916	10 726477	105
	9.9997			

## Log Sines

c	log. sin.		$\Delta^1$		$\Delta^2$		$\Delta^3$
	9.9997						
98 00	85649	000695	2149	225916	10	726477	105
97 99	83499	774779	2159	952393	10	726582	109
98	81339	822386	2170	678975	10	726691	106
97	79169	143411	2181	405666	10	726797	109
96	76987	737745	2192	132463	10	726906	109
97 95	74795	605282	2202	859369	10	727015	109
94	72592	745913	2213	586384	10	727124	110
93	70379	159529	2224	313508	10	727234	111
92	68154	846021	2235	040742	10	727345	110
91	65919	805279	2245	768087	10	727455	112
97 90	63674	037192	2256	495542	10	727567	112
89	61417	541650	2267	223109	10	727679	112
88	59150	318541	2277	950788	10	727791	114
87	56872	367753	2288	678579	10	727905	113
86	54583	689174	2299	406484	10	728018	115
97 85	52284	282690	2310	134502	10	728133	113
84	49974	148188	2320	862635	10	728246	116
83	47653	285553	2331	590881	10	728362	117
82	45321	694672	2342	319243	10	728479	114
81	42979	375429	2353	047722	10	728593	118
97 80	40626	327707	2363	776315	10	728711	117
79	38262	551392	2374	505026	10	728828	119
78	35888	046366	2385	233854	10	728947	117
77	33502	812512	2395	962801	10	729064	119
76	31106	849711	2406	691865	10	729183	120
97 75	28700	157846	2417	421048	10	729303	120
74	26282	736798	2428	150351	10	729423	120
73	23854	586447	2438	879774	10	729543	121
72	21415	706673	2449	609317	10	729664	122
71	18966	097356	2460	338981	10	729786	123
97 70	16505	758375	2471	068767	10	729909	121
69	14034	689608	2481	798676	10	730030	123
68	11552	890932	2492	528706	10	730153	125
67	09060	362226	2503	258859	10	730278	124
66	06557	103367	2513	989137	10	730402	124
97 65	04043	114230	2524	719539	10	730526	127
64	01518	394691	2535	450065	10	730653	123
63	98982	944626	2546	180718	10	730776	129
62	96436	763908	2556	911494	10	730905	125
61	93879	852414	2567	642399	10	731030	129
97 60	91312	210015	2578	373429	10	731159	127
	9.9996						

## Log Sines

c	log. sin.		$\Delta^1$	$\Delta^2$	$\Delta^3$
	97	60	9.9996		
		59	91312 210015	2578 373429	10 731159 127
		58	88733 836586	2589 104588	10 731286 129
		57	86144 731998	2599 835874	10 731415 128
		56	83544 896124	2610 567289	10 731543 130
		55	80934 328835	2621 298832	10 731673 131
	97	54	78313 030003	2632 030505	10 731804 130
		53	75680 999498	2642 762309	10 731934 131
		52	73038 237189	2653 494243	10 732065 132
		51	70384 742946	2664 226308	10 732197 131
		50	67720 516638	2674 958505	10 732328 135
	97	49	65045 558133	2685 690833	10 732463 131
		48	62359 867300	2696 423296	10 732594 135
		47	59663 444004	2707 155890	10 732729 134
		46	56956 288114	2717 888619	10 732863 135
		45	54238 399495	2728 621482	10 732998 136
	97	44	51509 778013	2739 354480	10 733134 135
		43	48770 423533	2750 087614	10 733269 136
		42	46020 335919	2760 820883	10 733405 139
		41	43259 515036	2771 554288	10 733544 135
		40	40487 960748	2782 287832	10 733679 140
	97	39	37705 672916	2793 021511	10 733819 139
		38	34912 651405	2803 755330	10 733958 137
		37	32108 896075	2814 489288	10 734095 140
		36	29294 406787	2825 223383	10 734235 142
		35	26469 183404	2835 957618	10 734377 140
	97	34	23633 225786	2846 691995	10 734517 140
		33	20786 533791	2857 426512	10 734657 143
		32	17929 107279	2868 161169	10 734800 142
		31	15060 946110	2878 895969	10 734942 143
		30	12182 050141	2889 630911	10 735085 143
	97	29	09292 419230	2900 365996	10 735228 144
		28	06392 053234	2911 101224	10 735372 145
		27	03480 952010	2921 836596	10 735517 145
		26	00559 115414	2932 572113	10 735662 145
		25	97626 543301	2943 307775	10 735807 146
	97	24	94683 235526	2954 043582	10 735953 146
		23	91729 191944	2964 779535	10 736099 149
		22	88764 412409	2975 515634	10 736248 146
		21	85788 896775	2986 251882	10 736394 149
		20	82802 644893	2996 988276	10 736543 148
	97	19	79805 656617	3007 724819	10 736691 150
			9.9995		

## Log Sines

c		log. sin.	$\Delta^1$	$\Delta^2$	$\Delta^3$
		9.9995			
97	20	79805 656617	3007 724819	10 736691	150
	19	76797 931798	3018 461510	10 736841	149
	18	73779 470288	3029 198351	10 736990	151
	17	70750 271937	3039 935341	10 737141	151
	16	67710 336596	3050 672482	10 737292	150
97	15	64659 664114	3061 409774	10 737442	154
	14	61598 254340	3072 147216	10 737596	151
	13	58526 107124	3082 884812	10 737747	153
	12	55443 222312	3093 622559	10 737900	154
	11	52349 599753	3104 360459	10 738054	154
97	10	49245 239294	3115 098513	10 738208	154
	09	46130 140781	3125 836721	10 738362	156
	08	43004 304060	3136 575083	10 738518	155
	07	39867 728977	3147 313601	10 738673	157
	06	36720 415376	3158 052274	10 738830	155
97	05	33562 363102	3168 791104	10 738985	159
	04	30393 571998	3179 530089	10 739144	157
	03	27214 041909	3190 269233	10 739301	159
	02	24023 772676	3201 008534	10 739460	157
	01	20822 764142	3211 747994	10 739617	162
97	00	17611 016148	3222 487611	10 739779	158
96	99	14388 528537	3233 227390	10 739937	161
	98	11155 301147	3243 967327	10 740098	161
	97	07911 333820	3254 707425	10 740259	161
	96	04656 626395	3265 447684	10 740420	163
96	95	01391 178711	3276 188104	10 740583	162
	94	98114 990607	3286 928687	10 740745	163
	93	94828 061920	3297 669432	10 740908	165
	92	91530 392488	3308 410340	10 741073	162
	91	88221 982148	3319 151413	10 741235	166
96	90	84902 830735	3329 892648	10 741401	165
	89	81572 938087	3340 634049	10 741566	166
	88	78232 304038	3351 375615	10 741732	166
	87	74880 928423	3362 117347	10 741898	167
	86	71518 811076	3372 859245	10 742065	168
96	85	68145 951831	3383 601310	10 742233	166
	84	64762 350521	3394 343543	10 742399	171
	83	61368 006978	3405 085942	10 742570	167
	82	57962 921036	3415 828512	10 742737	170
	81	54547 092524	3426 571249	10 742907	171
96	80	51120 521275	3437 314156	10 743078	170
		9.9994			

## Log Sines

c	log. sin.	$\Delta^1$	$\Delta^2$	$\Delta^3$
	9.9994			
96 80	51120 521275	3437 314156	10 743078	170
79	47683 207119	3448 057234	10 743248	170
78	44235 149885	3458 800482	10 743418	174
77	40776 349403	3469 543900	10 743592	170
76	37306 805503	3480 287492	10 743762	173
96 75	33826 518011	3491 031254	10 743935	175
74	30335 486757	3501 775189	10 744110	172
73	26833 711568	3512 519299	10 744282	176
72	23321 192269	3523 263581	10 744458	173
71	19797 928688	3534 008039	10 744631	176
96 70	16263 920649	3544 752670	10 744807	177
69	12719 167979	3555 497477	10 744984	175
68	09163 670502	3566 242461	10 745159	177
67	05597 428041	3576 987620	10 745336	179
66	02020 440421	3587 732956	10 745515	178
96 65	98432 707465	3598 478471	10 745693	177
64	94834 228994	3609 224164	10 745870	180
63	91225 004830	3619 970034	10 746050	180
62	87605 034796	3630 716084	10 746230	179
61	83974 318712	3641 462314	10 746409	183
96 60	80332 856398	3652 208723	10 746592	179
59	76680 647675	3662 955315	10 746771	183
58	73017 692360	3673 702086	10 746954	182
57	69343 990274	3684 449040	10 747136	183
56	65659 541234	3695 196176	10 747319	183
96 55	61964 345058	3705 943495	10 747502	185
54	58258 401563	3716 690997	10 747687	184
53	54541 710566	3727 438684	10 747871	184
52	50814 271882	3738 186555	10 748055	187
51	47076 085327	3748 934610	10 748242	185
96 50	43327 150717	3759 682852	10 748427	188
49	39567 467865	3770 431279	10 748615	186
48	35797 036586	3781 179894	10 748801	187
47	32015 856692	3791 928695	10 748988	191
46	28223 927997	3802 677683	10 749179	186
96 45	24421 250314	3813 426862	10 749365	190
44	20607 823452	3824 176227	10 749555	191
43	16783 647225	3834 925782	10 749746	189
42	12948 721443	3845 675528	10 749935	192
41	09103 045915	3856 425463	10 750127	191
96 40	05246 620452	3867 175590	10 750318	191
	9.9993			



## Log Sines

c		log. sin.	$\Delta^1$	$\Delta^2$	$\Delta^3$
		9.999			
96	40	3 05246 620452	3867 175590	10 750318	191
	39	3 01379 444862	3877 925908	10 750509	194
	38	2 97501 518954	3888 676417	10 750703	193
	37	2 93612 842537	3899 427120	10 750896	192
	36	2 89713 415417	3910 178016	10 751088	196
96	35	2 85803 237401	3920 929104	10 751284	194
	34	2 81882 308297	3931 680388	10 751478	195
	33	2 77950 627909	3942 431866	10 751673	195
	32	2 74008 196043	3953 183539	10 751868	198
	31	2 70055 012504	3963 935407	10 752066	196
96	30	2 66091 077097	3974 687473	10 752262	197
	29	2 62116 389624	3985 439735	10 752459	198
	28	2 58130 949889	3996 192194	10 752657	198
	27	2 54134 757695	4006 944851	10 752855	200
	26	2 50127 812844	4017 697706	10 753055	199
96	25	2 46110 115138	4028 450761	10 753254	200
	24	2 42081 664377	4039 204015	10 753454	201
	23	2 38042 460362	4049 957469	10 753655	200
	22	2 33992 502893	4060 711124	10 753855	203
	21	2 29931 791769	4071 464979	10 754058	201
96	20	2 25860 326790	4082 219037	10 754259	203
	19	2 21778 107753	4092 973296	10 754462	204
	18	2 17685 134457	4103 727758	10 754666	203
	17	2 13581 406699	4114 482424	10 754869	204
	16	2 09466 924275	4125 237293	10 755073	206
96	15	2 05341 686982	4135 992366	10 755279	205
	14	2 01205 694616	4146 747645	10 755484	205
	13	1 97058 946971	4157 503129	10 755689	207
	12	1 92901 443842	4168 258818	10 755896	208
	11	1 88733 185024	4179 014714	10 756104	206
96	10	1 84554 170310	4189 770818	10 756310	209
	09	1 80364 399492	4200 527128	10 756519	209
	08	1 76163 872364	4211 283647	10 756728	208
	07	1 71952 588717	4222 040375	10 756936	210
	06	1 67730 548342	4232 797311	10 757146	210
96	05	1 63497 751031	4243 554457	10 757356	212
	04	1 59254 196574	4254 311813	10 757568	211
	03	1 54999 884761	4265 069381	10 757779	210
	02	1 50734 815380	4275 827160	10 757989	215
	01	1 46458 988220	4286 585149	10 758204	210
96	00	1 42172 403071	4297 343353	10 758414	216
		9.999			

## Log Sines

c	log. sin.	$\Delta^1$	$\Delta^2$	$\Delta^3$
	9.999			
96 00	1 42172 403071	4297 343353	10 758414	216
95 99	1 37875 059718	4308 101767	10 758630	213
98	1 33566 957951	4318 860397	10 758843	215
97	1 29248 097554	4329 619240	10 759058	214
96	1 24918 478314	4340 378298	10 759272	216
95 95	1 20578 100016	4351 137570	10 759488	217
94	1 16226 962446	4361 897058	10 759705	216
93	1 11865 065388	4372 656763	10 759921	216
92	1 07492 408625	4383 416684	10 760137	220
91	1 03108 991941	4394 176821	10 760357	217
95 90	0 98714 815120	4404 937178	10 760574	219
89	0 94309 877942	4415 697752	10 760793	220
88	0 89894 180190	4426 458545	10 761013	218
87	0 85467 721645	4437 219558	10 761231	223
86	0 81030 502087	4447 980789	10 761454	219
95 85	0 76582 521298	4458 742243	10 761673	222
84	0 72123 779055	4469 503916	10 761895	223
83	0 67654 275139	4480 265811	10 762118	221
82	0 63174 009328	4491 027929	10 762339	225
81	0 58682 981399	4501 790268	10 762564	222
95 80	0 54181 191131	4512 552832	10 762786	224
79	0 49668 638299	4523 315618	10 763010	227
78	0 45145 322681	4534 078628	10 763237	223
77	0 40611 244053	4544 841865	10 763460	227
76	0 36066 402188	4555 605325	10 763687	225
95 75	0 31510 796863	4566 369012	10 763912	229
74	0 26944 427851	4577 132924	10 764141	226
73	0 22367 294927	4587 897065	10 764367	228
72	0 17779 397862	4598 661432	10 764595	229
71	0 13180 736430	4609 426027	10 764824	229
95 70	0 08571 310403	4620 190851	10 765053	229
69	0 03951 119552	4630 955904	10 765282	231
68	9 99320 163648	4641 721186	10 765513	230
67	9 94678 442462	4652 486699	10 765743	231
66	9 90025 955763	4663 252442	10 765974	233
95 65	9 85362 703321	4674 018416	10 766207	230
64	9 80688 684905	4684 784623	10 766437	235
63	9 76003 900282	4695 551060	10 766672	233
62	9 71308 349222	4706 317732	10 766905	233
61	9 66602 031490	4717 084637	10 767138	235
95 60	9 61884 946853	4727 851775	10 767373	234
	9.998			

## Log Sines

c		log. sin.	$\Delta^1$	$\Delta^2$	$\Delta^3$
		9.998			
95	60	9 61884 946853	4727 851775	10 767373	234
	59	9 57157 095078	4738 619148	10 767607	238
	58	9 52418 475930	4749 386755	10 767845	233
	57	9 47669 089175	4760 154600	10 768078	238
	56	9 42908 934575	4770 922678	10 768316	238
95	55	9 38138 011897	4781 690994	10 768554	236
	54	9 33356 320903	4792 459548	10 768790	240
	53	9 28563 861355	4803 228338	10 769030	237
	52	9 23760 633017	4813 997368	10 769267	240
	51	9 18946 635649	4824 766635	10 769507	240
95	50	9 14121 869014	4835 536142	10 769747	240
	49	9 09286 332872	4846 305889	10 769987	241
	48	9 04440 026983	4857 075876	10 770228	242
	47	8 99582 951107	4867 846104	10 770470	241
	46	8 94715 105003	4878 616574	10 770711	243
95	45	8 89836 488429	4889 387285	10 770954	244
	44	8 84947 101144	4900 158239	10 771198	242
	43	8 80046 942905	4910 929437	10 771440	245
	42	8 75136 013468	4921 700877	10 771685	244
	41	8 70214 312591	4932 472562	10 771929	247
95	40	8 65281 840029	4943 244491	10 772176	243
	39	8 60338 595538	4954 016667	10 772419	249
	38	8 55384 578871	4964 789086	10 772668	245
	37	8 50419 789785	4975 561754	10 772913	248
	36	8 45444 228031	4986 334667	10 773161	249
95	35	8 40457 893364	4997 107828	10 773410	246
	34	8 35460 785536	5007 881238	10 773656	251
	33	8 30452 904298	5018 654894	10 773907	249
	32	8 25434 249404	5029 428801	10 774156	250
	31	8 20404 820603	5040 202957	10 774406	251
95	30	8 15364 617646	5050 977363	10 774657	250
	29	8 10313 640283	5061 752020	10 774907	253
	28	8 05251 888263	5072 526927	10 775160	252
	27	8 00179 361336	5083 302087	10 775412	253
	26	7 95096 059249	5094 077499	10 775665	252
95	25	7 90001 981750	5104 853164	10 775917	255
	24	7 84897 128586	5115 629081	10 776172	254
	23	7 79781 499505	5126 405253	10 776426	255
	22	7 74655 094252	5137 181679	10 776681	256
	21	7 69517 912573	5147 958360	10 776937	255
95	20	7 64369 954213	5158 735297	10 777192	258
		9.998			

## Log Sines

c		log. sin.	$\Delta^1$	$\Delta^2$	$\Delta^3$
		9.998			
95	20	7 64369 954213	5158 735297	10 777192	258
	19	7 59211 218916	5169 512489	10 777450	256
	18	7 54041 706427	5180 289939	10 777706	257
	17	7 48861 416488	5191 067645	10 777963	260
	16	7 43670 348843	5201 845608	10 778223	258
95	15	7 38468 503235	5212 623831	10 778481	259
	14	7 33255 879404	5223 402312	10 778740	260
	13	7 28032 477092	5234 181052	10 779000	260
	12	7 22798 296040	5244 960052	10 779260	262
	11	7 17553 335988	5255 739312	10 779522	260
95	10	7 12297 596676	5266 518834	10 779782	263
	09	7 07031 077842	5277 298616	10 780045	262
	08	7 01753 779226	5288 078661	10 780307	263
	07	6 96465 700565	5298 858968	10 780570	264
	06	6 91166 841597	5309 639538	10 780834	264
95	05	6 85857 202059	5320 420372	10 781098	265
	04	6 80536 781687	5331 201470	10 781363	264
	03	6 75205 580217	5341 982833	10 781627	268
	02	6 69863 597384	5352 764460	10 781895	264
	01	6 64510 832924	5363 546355	10 782159	268
95	00	6 59147 286569	5374 328514	10 782427	268
94	99	6 53772 958055	5385 110941	10 782695	266
	98	6 48387 847114	5395 893636	10 782961	271
	97	6 42991 953478	5406 676597	10 783232	267
	96	6 37585 276881	5417 459829	10 783499	270
94	95	6 32167 817052	5428 243328	10 783769	271
	94	6 26739 573724	5439 027097	10 784040	270
	93	6 21300 546627	5449 811137	10 784310	271
	92	6 15850 735490	5460 595447	10 784581	272
	91	6 10390 140043	5471 380028	10 784853	273
94	90	6 04918 760015	5482 164881	10 785126	271
	89	5 99436 595134	5492 950007	10 785397	275
	88	5 93943 645127	5503 735404	10 785672	274
	87	5 88439 909723	5514 521076	10 785946	273
	86	5 82925 388647	5525 307022	10 786219	276
94	85	5 77400 081625	5536 093241	10 786495	275
	84	5 71863 988384	5546 879736	10 786770	277
	83	5 66317 108648	5557 666506	10 787047	276
	82	5 60759 442142	5568 453553	10 787323	277
	81	5 55190 988589	5579 240876	10 787600	278
94	80	5 49611 747713	5590 028476	10 787878	278
		9.998			

## Log Sines

c		log. sin.	$\Delta^1$	$\Delta^2$	$\Delta^3$
		9.998			
94	80	5 49611 747713	5590 028476	10 787878	278
	79	5 44021 719237	5600 816354	10 788156	279
	78	5 38420 902883	5611 604510	10 788435	280
	77	5 32809 298373	5622 392945	10 788715	278
	76	5 27186 905428	5633 181660	10 788993	283
94	75	5 21553 723768	5643 970653	10 789276	279
	74	5 15909 753115	5654 759929	10 789555	282
	73	5 10254 993186	5665 549484	10 789837	282
	72	5 04589 443702	5676 339321	10 790119	283
	71	4 98913 104381	5687 129440	10 790402	283
94	70	4 93225 974941	5697 919842	10 790685	283
	69	4 87528 055099	5708 710527	10 790968	285
	68	4 81819 344572	5719 501495	10 791253	285
	67	4 76099 843077	5730 292748	10 791538	285
	66	4 70369 550329	5741 084286	10 791823	286
94	65	4 64628 466043	5751 876109	10 792109	285
	64	4 58876 589934	5762 668218	10 792394	289
	63	4 53113 921716	5773 460612	10 792683	287
	62	4 47340 461104	5784 253295	10 792970	287
	61	4 41556 207809	5795 046265	10 793257	289
94	60	4 35761 161544	5805 839522	10 793546	290
	59	4 29955 322022	5816 633068	10 793836	289
	58	4 24138 688954	5827 426904	10 794125	290
	57	4 18311 262050	5838 221029	10 794415	291
	56	4 12473 041021	5849 015444	10 794706	291
94	55	4 06624 025577	5859 810150	10 794997	293
	54	4 00764 215427	5870 605147	10 795290	291
	53	3 94893 610280	5881 400437	10 795581	294
	52	3 89012 209843	5892 196018	10 795875	292
	51	3 83120 013825	5902 991893	10 796167	296
94	50	3 77217 021932	5913 788060	10 796463	293
	49	3 71303 233872	5924 584523	10 796756	296
	48	3 65378 649349	5935 381279	10 797052	295
	47	3 59443 268070	5946 178331	10 797347	297
	46	3 53497 089739	5956 975678	10 797644	296
94	45	3 47540 114061	5967 773322	10 797940	298
	44	3 41572 340739	5978 571262	10 798238	297
	43	3 35593 769477	5989 369500	10 798535	299
	42	3 29604 399977	6000 168035	10 798834	299
	41	3 23604 231942	6010 966869	10 799133	299
94	40	3 17593 265073	6021 766002	10 799432	300
		9.998			

## Log Sines

c	log. sin.	$\Delta^1$	$\Delta^2$	$\Delta^3$
	9.998			
94 40	3 17593 265073	6021 766002	10 799432	300
39	3 11571 499071	6032 565434	10 799732	301
38	3 05538 933637	6043 365166	10 800033	301
37	2 99495 568471	6054 165199	10 800334	302
36	2 93441 403272	6064 965533	10 800636	301
94 35	2 87376 437739	6075 766169	10 800937	304
34	2 81300 671570	6086 567106	10 801241	303
33	2 75214 104464	6097 368347	10 801544	304
32	2 69116 736117	6108 169891	10 801848	304
31	2 63008 566226	6118 971739	10 802152	305
94 30	2 56889 594487	6129 773891	10 802457	305
29	2 50759 820596	6140 576348	10 802762	307
28	2 44619 244248	6151 379110	10 803069	306
27	2 38467 865138	6162 182179	10 803375	307
26	2 32305 682959	6172 985554	10 803682	308
94 25	2 26132 697405	6183 789236	10 803990	308
24	2 19948 908169	6194 593226	10 804298	309
23	2 13754 314943	6205 397524	10 804607	309
22	2 07548 917419	6216 202131	10 804916	311
21	2 01332 715288	6227 007047	10 805227	308
94 20	1 95105 708241	6237 812274	10 805535	313
19	1 88867 895967	6248 617809	10 805848	311
18	1 82619 278158	6259 423657	10 806159	312
17	1 76359 854501	6270 229816	10 806471	312
16	1 70089 624685	6281 036287	10 806783	314
94 15	1 63808 588398	6291 843070	10 807097	313
14	1 57516 745328	6302 650167	10 807410	315
13	1 51214 095161	6313 457577	10 807725	314
12	1 44900 637584	6324 265302	10 808039	315
11	1 38576 372282	6335 073341	10 808354	317
94 10	1 32241 298941	6345 881695	10 808671	316
09	1 25895 417246	6356 690366	10 808987	317
08	1 19538 726880	6367 499353	10 809304	317
07	1 13171 227527	6378 308657	10 809621	318
06	1 06792 918870	6389 118278	10 809939	320
94 05	1 00403 800592	6399 928217	10 810259	317
04	0 94003 872375	6410 738476	10 810576	322
03	0 87593 133899	6421 549052	10 810898	319
02	0 81171 584847	6432 359950	10 811217	320
01	0 74739 224897	6443 171167	10 811537	323
94 00	0 68296 053730	6453 982704	10 811860	321
	9.998			

## Log Sines

c	log. sin.	$\Delta^1$	$\Delta^2$	$\Delta^3$
	9.998			
94 00	0 68296 053730	6453 982704	10 811860	321
93 99	0 61842 071026	6464 794564	10 812181	322
98	0 55377 276462	6475 606745	10 812503	324
97	0 48901 669717	6486 419248	10 812827	323
96	0 42415 250469	6497 232075	10 813150	325
93 95	0 35918 018394	6508 045225	10 813475	323
94	0 29409 973169	6518 858700	10 813798	326
93	0 22891 114469	6529 672498	10 814124	325
92	0 16361 441971	6540 486622	10 814449	328
91	0 09820 955349	6551 301071	10 814777	326
93 90	0 03269 654278	6562 115848	10 815103	326
89	9 96707 538430	6572 930951	10 815429	330
88	9 90134 607479	6583 746380	10 815759	328
87	9 83550 861099	6594 562139	10 816087	328
86	9 76956 298960	6605 378226	10 816415	330
93 85	9 70350 920734	6616 194641	10 816745	330
84	9 63734 726093	6627 011386	10 817075	332
83	9 57107 714707	6637 828461	10 817407	329
82	9 50469 886246	6648 645868	10 817736	333
81	9 43821 240378	6659 463604	10 818069	333
93 80	9 37161 776774	6670 281673	10 818402	332
79	9 30491 495101	6681 100075	10 818734	333
78	9 23810 395026	6691 918809	10 819067	335
77	9 17118 476217	6702 737876	10 819402	333
76	9 10415 738341	6713 557278	10 819735	337
93 75	9 03702 181063	6724 377013	10 820072	334
74	8 96977 804050	6735 197085	10 820406	337
73	8 90242 606965	6746 017491	10 820743	337
72	8 83496 589474	6756 838234	10 821080	336
71	8 76739 751240	6767 659314	10 821416	339
93 70	8 69972 091926	6778 480730	10 821755	338
69	8 63193 611196	6789 302485	10 822093	339
68	8 56404 308711	6800 124578	10 822432	339
67	8 49604 184133	6810 947010	10 822771	340
66	8 42793 237123	6821 769781	10 823111	341
93 65	8 35971 467342	6832 592892	10 823452	341
64	8 29138 874450	6843 416344	10 823793	342
63	8 22295 458106	6854 240137	10 824135	341
62	8 15441 217969	6865 064272	10 824476	344
61	8 08576 153697	6875 888748	10 824820	343
93 60	8 01700 264949	6886 713568	10 825163	344
	9.997			

## Log Sines

c	log. sin.	$\Delta^1$	$\Delta^2$	$\Delta^3$
	9.997			
93 60	8 01700 264949	6886 713568	10 825163	344
59	7 94813 551381	6897 538731	10 825507	344
58	7 87916 012650	6908 364238	10 825851	345
57	7 81007 648412	6919 190089	10 826196	346
56	7 74088 458323	6930 016285	10 826542	345
93 55	7 67158 442038	6940 842827	10 826887	347
54	7 60217 599211	6951 669714	10 827234	349
53	7 53265 929497	6962 496948	10 827583	345
52	7 46303 432549	6973 324531	10 827928	350
51	7 39330 108018	6984 152459	10 828278	348
93 50	7 32345 955559	6994 980737	10 828626	349
49	7 25350 974822	7005 809363	10 828975	352
48	7 18345 165459	7016 638338	10 829327	348
47	7 11328 527121	7027 467665	10 829675	352
46	7 04301 059456	7038 297340	10 830027	352
93 45	6 97262 762116	7049 127367	10 830379	352
44	6 90213 634749	7059 957746	10 830731	352
43	6 83153 677003	7070 788477	10 831083	354
42	6 76082 888526	7081 619560	10 831437	353
41	6 69001 268966	7092 450997	10 831790	355
93 40	6 61908 817969	7103 282787	10 832145	355
39	6 54805 535182	7114 114932	10 832500	355
38	6 47691 420250	7124 947432	10 832855	356
37	6 40566 472818	7135 780287	10 833211	356
36	6 33430 692531	7146 613498	10 833567	358
93 35	6 26284 079033	7157 447065	10 833925	358
34	6 19126 631968	7168 280990	10 834283	357
33	6 11958 350978	7179 115273	10 834640	360
32	6 04779 235705	7189 949913	10 835000	358
31	5 97589 285792	7200 784913	10 835358	361
93 30	5 90388 500879	7211 620271	10 835719	359
29	5 83176 880608	7222 455990	10 836078	363
28	5 75954 424618	7233 292068	10 836441	360
27	5 68721 132550	7244 128509	10 836801	362
26	5 61477 004041	7254 965310	10 837163	363
93 25	5 54222 038731	7265 802473	10 837526	364
24	5 46956 236258	7276 639999	10 837890	362
23	5 39679 596259	7287 477889	10 838252	366
22	5 32392 118370	7298 316141	10 838618	364
21	5 25093 802229	7309 154759	10 838982	365
93 20	5 17784 647470	7319 993741	10 839347	367
	9.997			



## Log Sines

c		log. sin.	$\Delta^1$	$\Delta^2$	$\Delta^3$
		9.997			
93	20	5 17784 647470	7319 993741	10 839347	367
	19	5 10464 653729	7330 833088	10 839714	365
	18	5 03133 820641	7341 672802	10 840079	369
	17	4 95792 147839	7352 512881	10 840448	366
	16	4 88439 634958	7363 353329	10 840814	368
93	15	4 81076 281629	7374 194143	10 841182	370
	14	4 73702 087486	7385 035325	10 841552	369
	13	4 66317 052161	7395 876877	10 841921	369
	12	4 58921 175284	7406 718798	10 842290	371
	11	4 51514 456486	7417 561088	10 842661	371
93	10	4 44096 895398	7428 403749	10 843032	371
	09	4 36668 491649	7439 246781	10 843403	373
	08	4 29229 244868	7450 090184	10 843776	371
	07	4 21779 154684	7460 933960	10 844147	374
	06	4 14318 220724	7471 778107	10 844521	374
93	05	4 06846 442617	7482 622628	10 844895	374
	04	3 99363 819989	7493 467523	10 845269	375
	03	3 91870 352466	7504 312792	10 845644	375
	02	3 84366 039674	7515 158436	10 846019	375
	01	3 76850 881238	7526 004455	10 846394	379
93	00	3 69324 876783	7536 850849	10 846773	374
92	99	3 61788 025934	7547 697622	10 847147	380
	98	3 54240 328312	7558 544769	10 847527	378
	97	3 46681 783543	7569 392296	10 847905	377
	96	3 39112 391247	7580 240201	10 848282	380
92	95	3 31532 151046	7591 088483	10 848662	380
	94	3 23941 062563	7601 937145	10 849042	380
	93	3 16339 125418	7612 786187	10 849422	382
	92	3 08726 339231	7623 635609	10 849804	381
	91	3 01102 703622	7634 485413	10 850185	381
92	90	2 93468 218209	7645 335598	10 850566	383
	89	2 85822 882611	7656 186164	10 850949	384
	88	2 78166 696447	7667 037113	10 851333	383
	87	2 70499 659334	7677 888446	10 851716	384
	86	2 62821 770888	7688 740162	10 852100	386
92	85	2 55133 030726	7699 592262	10 852486	384
	84	2 47433 438464	7710 444748	10 852870	386
	83	2 39722 993716	7721 297618	10 853256	387
	82	2 32001 696098	7732 150874	10 853643	388
	81	2 24269 545224	7743 004517	10 854031	385
92	80	2 16526 540707	7753 858548	10 854416	391
		9.997			

## Log Sines

c	log. sin.	$\Delta^1$	$\Delta^2$	$\Delta^3$
	9.997			
92 80	2 16526 540707	7753 858548	10 854416	391
79	2 08772 682159	7764 712964	10 854807	386
78	2 01007 969195	7775 567771	10 855193	391
77	1 93232 401424	7786 422964	10 855584	390
76	1 85445 978460	7797 278548	10 855974	389
92 75	1 77648 699912	7808 134522	10 856363	392
74	1 69840 565390	7818 990885	10 856755	391
73	1 62021 574505	7829 847640	10 857146	393
72	1 54191 726865	7840 704786	10 857539	391
71	1 46351 022079	7851 562325	10 857930	394
92 70	1 38499 459754	7862 420255	10 858324	394
69	1 30637 039499	7873 278579	10 858718	393
68	1 22763 760920	7884 137297	10 859111	396
67	1 14879 623623	7894 996408	10 859507	396
66	1 06984 627215	7905 855915	10 859903	394
92 65	0 99078 771300	7916 715818	10 860297	398
64	0 91162 055482	7927 576115	10 860695	396
63	0 83234 479367	7938 436810	10 861091	399
62	0 75296 042557	7949 297901	10 861490	397
61	0 67346 744656	7960 159391	10 861887	399
92 60	0 59386 585265	7971 021278	10 862286	399
59	0 51415 563987	7981 883564	10 862685	401
58	0 43433 680423	7992 746249	10 863086	399
57	0 35440 934174	8003 609335	10 863485	402
56	0 27437 324839	8014 472820	10 863887	400
92 55	0 19422 852019	8025 336707	10 864287	404
54	0 11397 515312	8036 200994	10 864691	402
53	0 03361 314318	8047 065685	10 865093	403
52	9 95314 248633	8057 930778	10 865496	403
51	9 87256 317855	8068 796274	10 865899	405
92 50	9 79187 521581	8079 662173	10 866304	405
49	9 71107 859408	8090 528477	10 866709	406
48	9 63017 330931	8101 395186	10 867115	405
47	9 54915 935745	8112 262301	10 867520	406
46	9 46803 673444	8123 129821	10 867926	409
92 45	9 38680 543623	8133 997747	10 868335	406
44	9 30546 545876	8144 866082	10 868741	409
43	9 22401 679794	8155 734823	10 869150	409
42	9 14245 944971	8166 603973	10 869559	409
41	9 06079 340998	8177 473532	10 869968	409
92 40	8 97901 867466	8188 343500	10 870377	412
	9.996			

## Log Sines

c	log. sin.	$\Delta^1$	$\Delta^2$	$\Delta^3$
	9.996			
92 40	8 97901 867466	8188 343500	10 870377	412
39	8 89713 523966	8199 213877	10 870789	410
38	8 81514 310089	8210 084666	10 871199	412
37	8 73304 225423	8220 955865	10 871611	412
36	8 65083 269558	8231 827476	10 872023	413
92 35	8 56851 442082	8242 699499	10 872436	412
34	8 48608 742583	8253 571935	10 872848	416
33	8 40355 170648	8264 444783	10 873264	413
32	8 32090 725865	8275 318047	10 873677	415
31	8 23815 407818	8286 191724	10 874092	415
92 30	8 15529 216094	8297 065816	10 874507	418
29	8 07232 150278	8307 940323	10 874925	414
28	7 98924 209955	8318 815248	10 875339	419
27	7 90605 394707	8329 690587	10 875758	418
26	7 82275 704120	8340 566345	10 876176	417
92 25	7 73935 137775	8351 442521	10 876593	419
24	7 65583 695254	8362 319114	10 877012	420
23	7 57221 376140	8373 196126	10 877432	420
22	7 48848 180014	8384 073558	10 877852	421
21	7 40464 106456	8394 951410	10 878273	420
92 20	7 32069 155046	8405 829683	10 878693	422
19	7 23663 325363	8416 708376	10 879115	422
18	7 15246 616987	8427 587491	10 879537	424
17	7 06819 029496	8438 467028	10 879961	422
16	6 98380 562468	8449 346989	10 880383	425
92 15	6 89931 215479	8460 227372	10 880808	423
14	6 81470 988107	8471 108180	10 881231	427
13	6 72999 879927	8481 989411	10 881658	424
12	6 64517 890516	8492 871069	10 882082	427
11	6 56025 019447	8503 753151	10 882509	426
92 10	6 47521 266296	8514 635660	10 882935	428
09	6 39006 630636	8525 518595	10 883363	428
08	6 30481 112041	8536 401958	10 883791	428
07	6 21944 710083	8547 285749	10 884219	429
06	6 13397 424334	8558 169968	10 884648	429
92 05	6 04839 254366	8569 054616	10 885077	431
04	5 96270 199750	8579 939693	10 885508	430
03	5 87690 260057	8590 825201	10 885938	432
02	5 79099 434856	8601 711139	10 886370	431
01	5 70497 723717	8612 597509	10 886801	433
92 00	5 61885 126208	8623 484310	10 887234	432
	9.996			

## Log Sines

c		log. sin.	$\Delta^1$	$\Delta^2$	$\Delta^3$
		9.996			
92	00	5 61885 126208	8623 484310	10 887234	432
91	99	5 53261 641898	8634 371544	10 887666	434
	98	5 44627 270354	8645 259210	10 888100	435
	97	5 35982 011144	8656 147310	10 888535	433
	96	5 27325 863834	8667 035845	10 888968	436
91	95	5 18658 827989	8677 924813	10 889404	435
	94	5 09980 903176	8688 814217	10 889839	438
	93	5 01292 088959	8699 704056	10 890277	435
	92	4 92592 384903	8710 594333	10 890712	439
	91	4 83881 790570	8721 485045	10 891151	436
91	90	4 75160 305525	8732 376196	10 891587	441
	89	4 66427 929329	8743 267783	10 892028	437
	88	4 57684 661546	8754 159811	10 892465	440
	87	4 48930 501735	8765 052276	10 892905	442
	86	4 40165 449459	8775 945181	10 893347	439
91	85	4 31389 504278	8786 838528	10 893786	442
	84	4 22602 665750	8797 732314	10 894228	441
	83	4 13804 933436	8808 626542	10 894669	445
	82	4 04996 306894	8819 521211	10 895114	440
	81	3 96176 785683	8830 416325	10 895554	446
91	80	3 87346 369358	8841 311879	10 896000	443
	79	3 78505 057479	8852 207879	10 896443	445
	78	3 69652 849600	8863 104322	10 896888	445
	77	3 60789 745278	8874 001210	10 897333	446
	76	3 51915 744068	8884 898543	10 897779	447
91	75	3 43030 845525	8895 796322	10 898226	447
	74	3 34135 049203	8906 694548	10 898673	447
	73	3 25228 354655	8917 593221	10 899120	449
	72	3 16310 761434	8928 492341	10 899569	448
	71	3 07382 269093	8939 391910	10 900017	449
91	70	2 98442 877183	8950 291927	10 900466	450
	69	2 89492 585256	8961 192393	10 900916	452
	68	2 80531 392863	8972 093309	10 901368	448
	67	2 71559 299554	8982 994677	10 901816	455
	66	2 62576 304877	8993 896493	10 902271	449
91	65	2 53582 408384	9004 798764	10 902720	454
	64	2 44577 609620	9015 701484	10 903174	454
	63	2 35561 908136	9026 604658	10 903628	453
	62	2 26535 303478	9037 508286	10 904081	454
	61	2 17497 795192	9048 412367	10 904535	455
91	60	2 08449 382825	9059 316902	10 904990	457
		9.996			

## Log Sines

c	log. sin.	$\Delta^1$	$\Delta^2$	$\Delta^3$
	9.996			
91 60	2 08449 382825	9059 316902	10 904990	457
59	1 99390 065923	9070 221892	10 905447	454
58	1 90319 844031	9081 127339	10 905901	458
57	1 81238 716692	9092 033240	10 906359	457
56	1 72146 683452	9102 939599	10 906816	458
91 55	1 63043 743853	9113 846415	10 907274	457
54	1 53929 897438	9124 753689	10 907731	461
53	1 44805 143749	9135 661420	10 908192	457
52	1 35669 482329	9146 569612	10 908649	462
51	1 26522 912717	9157 478261	10 909111	460
91 50	1 17365 434456	9168 387372	10 909571	462
49	1 08197 047084	9179 296943	10 910033	460
48	0 99017 750141	9190 206976	10 910493	463
47	0 89827 543165	9201 117469	10 910956	464
46	0 80626 425696	9212 028425	10 911420	462
91 45	0 71414 397271	9222 939845	10 911882	465
44	0 62191 457426	9233 851727	10 912347	464
43	0 52957 605699	9244 764074	10 912811	465
42	0 43712 841625	9255 676885	10 913276	466
41	0 34457 164740	9266 590161	10 913742	467
91 40	0 25190 574579	9277 503903	10 914209	466
39	0 15913 070676	9288 418112	10 914675	468
38	0 06624 652564	9299 332787	10 915143	467
37	9 97325 319777	9310 247930	10 915610	470
36	9 88015 071847	9321 163540	10 916080	467
91 35	9 78693 908307	9332 079620	10 916547	472
34	9 69361 828687	9342 996167	10 917019	470
33	9 60018 832520	9353 913186	10 917489	469
32	9 50664 919334	9364 830675	10 917958	474
31	9 41300 088659	9375 748633	10 918432	469
91 30	9 31924 340026	9386 667065	10 918901	475
29	9 22537 672961	9397 585966	10 919376	473
28	9 13140 086995	9408 505342	10 919849	472
27	9 03731 581653	9419 425191	10 920321	475
26	8 94312 156462	9430 345512	10 920796	476
91 25	8 84881 810950	9441 266308	10 921272	474
24	8 75440 544642	9452 187580	10 921746	476
23	8 65988 357062	9463 109326	10 922222	477
22	8 56525 247736	9474 031548	10 922699	478
21	8 47051 216188	9484 954247	10 923177	476
91 20	8 37566 261941	9495 877424	10 923653	479
	9.995			

## Log Sines

c		log. sin.		$\Delta^1$	$\Delta^2$	$\Delta^3$
		9.995				
91	20	8	37566 261941	9495 877424	10 923653	479
	19	8	28070 384517	9506 801077	10 924132	479
	18	8	18563 583440	9517 725209	10 924611	479
	17	8	09045 858231	9528 649820	10 925090	481
	16	7	99517 208411	9539 574910	10 925571	479
91	15	7	89977 633501	9550 500481	10 926050	482
	14	7	80427 133020	9561 426531	10 926532	482
	13	7	70865 706489	9572 353063	10 927014	481
	12	7	61293 353426	9583 280077	10 927495	484
	11	7	51710 073349	9594 207572	10 927979	483
91	10	7	42115 865777	9605 135551	10 928462	484
	09	7	32510 730226	9616 064013	10 928946	484
	08	7	22894 666213	9626 992959	10 929430	486
	07	7	13267 673254	9637 922389	10 929916	486
	06	7	03629 750865	9648 852305	10 930402	484
91	05	6	93980 898560	9659 782707	10 930886	489
	04	6	84321 115853	9670 713593	10 931375	487
	03	6	74650 402260	9681 644968	10 931862	488
	02	6	64968 757292	9692 576830	10 932350	487
	01	6	55276 180462	9703 509180	10 932837	491
91	00	6	45572 671282	9714 442017	10 933328	489
90	99	6	35858 229265	9725 375345	10 933817	491
	98	6	26132 853920	9736 309162	10 934308	489
	97	6	16396 544758	9747 243470	10 934797	493
	96	6	06649 301288	9758 178267	10 935290	492
90	95	5	96891 123021	9769 113557	10 935782	491
	94	5	87122 009464	9780 049339	10 936273	495
	93	5	77341 960125	9790 985612	10 936768	492
	92	5	67550 974513	9801 922380	10 937260	495
	91	5	57749 052133	9812 859640	10 937755	496
90	90	5	47936 192493	9823 797395	10 938251	494
	89	5	38112 395098	9834 735646	10 938745	496
	88	5	28277 659452	9845 674391	10 939241	497
	87	5	18431 985061	9856 613632	10 939738	497
	86	5	08575 371429	9867 553370	10 940235	497
90	85	4	98707 818059	9878 493605	10 940732	500
	84	4	88829 324454	9889 434337	10 941232	498
	83	4	78939 890117	9900 375569	10 941730	499
	82	4	69039 514548	9911 317299	10 942229	500
	81	4	59128 197249	9922 259528	10 942729	501
90	80	4	49205 937721	9933 202257	10 943230	501
		9.995				

## Log Sines

c	log. sin.	$\Delta^1$	$\Delta^2$	$\Delta^3$
	9.995			
90 80	4 49205 937721	9933 202257	10 943230	501
79	4 39272 735464	9944 145487	10 943731	502
78	4 29328 589977	9955 089218	10 944233	501
77	4 19373 500759	9966 033451	10 944734	505
76	4 09407 467308	9976 978185	10 945239	502
90 75	3 99430 489123	9987 923424	10 945741	505
74	3 89442 565699	9998 869165	10 946246	503
73	3 79443 696534	10009 815411	10 946749	507
72	3 69433 881123	10020 762160	10 947256	504
71	3 59413 118963	10031 709416	10 947760	508
90 70	3 49381 409547	10042 657176	10 948268	506
69	3 39338 752371	10053 605444	10 948774	508
68	3 29285 146927	10064 554218	10 949282	507
67	3 19220 592709	10075 503500	10 949789	509
66	3 09145 089209	10086 453289	10 950298	511
90 65	2 99058 635920	10097 403587	10 950809	507
64	2 88961 232333	10108 354396	10 951316	512
63	2 78852 877937	10119 305712	10 951828	510
62	2 68733 572225	10130 257540	10 952338	513
61	2 58603 314685	10141 209878	10 952851	511
90 60	2 48462 104807	10152 162729	10 953362	512
59	2 38309 942078	10163 116091	10 953874	515
58	2 28146 825987	10174 069965	10 954389	512
57	2 17972 756022	10185 024354	10 954901	516
56	2 07787 731668	10195 979255	10 955417	514
90 55	1 97591 752413	10206 934672	10 955931	516
54	1 87384 817741	10217 890603	10 956447	516
53	1 77166 927138	10228 847050	10 956963	516
52	1 66938 080088	10239 804013	10 957479	518
51	1 56698 276075	10250 761492	10 957997	518
90 50	1 46447 514583	10261 719489	10 958515	518
49	1 36185 795094	10272 678004	10 959033	519
48	1 25913 117090	10283 637037	10 959552	520
47	1 15629 480053	10294 596589	10 960072	520
46	1 05334 883464	10305 556661	10 960592	521
90 45	0 95029 326803	10316 517253	10 961113	520
44	0 84712 809550	10327 478366	10 961633	524
43	0 74385 331184	10338 439999	10 962157	521
42	0 64046 891185	10349 402156	10 962678	523
41	0 53697 489029	10360 364834	10 963201	524
90 40	0 43337 124195	10371 328035	10 963725	524
	9.995			

## Log Sines

c	log. sin.	$\Delta^1$	$\Delta^2$	$\Delta^3$
	9.995			
90 40	0 43337 124195	10371 328035	10 963725	524
39	0 32965 796160	10382 291760	10 964249	526
38	0 22583 504400	10393 256009	10 964775	524
37	0 12190 248391	10404 220784	10 965299	526
36	0 01786 027607	10415 186083	10 965825	528
90 35	9 91370 841524	10426 151908	10 966353	525
34	9 80944 689616	10437 118261	10 966878	529
33	9 70507 571355	10448 085139	10 967407	528
32	9 60059 486216	10459 052546	10 967935	529
31	9 49600 433670	10470 020481	10 968464	529
90 30	9 39130 413189	10480 988945	10 968993	530
29	9 28649 424244	10491 957938	10 969523	531
28	9 18157 466306	10502 927461	10 970054	531
27	9 07654 538845	10513 897515	10 970585	531
26	8 97140 641330	10524 868100	10 971116	534
90 25	8 86615 773230	10535 839216	10 971650	532
24	8 76079 934014	10546 810866	10 972182	533
23	8 65533 123148	10557 783048	10 972715	535
22	8 54975 340100	10568 755763	10 973250	534
21	8 44406 584337	10579 729013	10 973784	535
90 20	8 33826 855324	10590 702797	10 974319	536
19	8 23236 152527	10601 677116	10 974855	537
18	8 12634 475411	10612 651971	10 975392	537
17	8 02021 823440	10623 627363	10 975929	536
16	7 91398 196077	10634 603292	10 976465	540
90 15	7 80763 592785	10645 579757	10 977005	538
14	7 70118 013028	10656 556762	10 977543	539
13	7 59461 456266	10667 534305	10 978082	540
12	7 48793 921961	10678 512387	10 978622	541
11	7 38115 409574	10689 491009	10 979163	540
90 10	7 27425 918565	10700 470172	10 979703	542
09	7 16725 448393	10711 449875	10 980245	543
08	7 06013 998518	10722 430120	10 980788	542
07	6 95291 568398	10733 410908	10 981330	544
06	6 84558 157490	10744 392238	10 981874	543
90 05	6 73813 765252	10755 374112	10 982417	545
04	6 63058 391140	10766 356529	10 982962	546
03	6 52292 034611	10777 339491	10 983508	544
02	6 41514 695120	10788 322999	10 984052	547
01	6 30726 372121	10799 307051	10 984599	548
90 00	6 19927 065070	10810 291650	10 985147	546
	9.994			



## Log Sines

c	log. sin.	$\Delta^1$	$\Delta^2$	$\Delta^3$
	9.994			
90 00	6 19927 065070	10810 291650	10 985147	546
89 99	6 09116 773420	10821 276797	10 985693	548
98	5 98295 496623	10832 262490	10 986241	550
97	5 87463 234133	10843 248731	10 986791	547
96	5 76619 985402	10854 235522	10 987338	552
89 95	5 65765 749880	10865 222860	10 987890	549
94	5 54900 527020	10876 210750	10 988439	552
93	5 44024 316270	10887 199189	10 988991	551
92	5 33137 117081	10898 188180	10 989542	551
91	5 22238 928901	10909 177722	10 990093	555
89 90	5 11329 751179	10920 167815	10 990648	551
89	5 00409 583364	10931 158463	10 991199	555
88	4 89478 424901	10942 149662	10 991754	554
87	4 78536 275239	10953 141416	10 992308	556
86	4 67583 133823	10964 133724	10 992864	555
89 85	4 56619 000099	10975 126588	10 993419	556
84	4 45643 873511	10986 120007	10 993975	557
83	4 34657 753504	10997 113982	10 994532	557
82	4 23660 639522	11008 108514	10 995089	559
81	4 12652 531008	11019 103603	10 995648	557
89 80	4 01633 427405	11030 099251	10 996205	560
79	3 90603 328154	11041 095456	10 996765	560
78	3 79562 232698	11052 092221	10 997325	560
77	3 68510 140477	11063 089546	10 997885	561
76	3 57447 050931	11074 087431	10 998446	561
89 75	3 46372 963500	11085 085877	10 999007	563
74	3 35287 877623	11096 084884	10 999570	561
73	3 24191 792739	11107 084454	11 000131	565
72	3 13084 708285	11118 084585	11 000696	563
71	3 01966 623700	11129 085281	11 001259	564
89 70	2 90837 538419	11140 086540	11 001823	566
69	2 79697 451879	11151 088363	11 002389	565
68	2 68546 363516	11162 090752	11 002954	566
67	2 57384 272764	11173 093706	11 003520	567
66	2 46211 179058	11184 097226	11 004087	568
89 65	2 35027 081832	11195 101313	11 004655	566
64	2 23831 980519	11206 105968	11 005221	570
63	2 12625 874551	11217 111189	11 005791	569
62	2 01408 763362	11228 116980	11 006360	570
61	1 90180 646382	11239 123340	11 006930	569
89 60	1 78941 523042	11250 130270	11 007499	572
	9.994			

## Log Sines

c	log. sin.	$\Delta^1$	$\Delta^2$	$\Delta^3$
	9.994			
89 60	1 78941 523042	11250 130270	11 007499	572
59	1 67691 392772	11261 137769	11 008071	571
58	1 56430 255003	11272 145840	11 008642	572
57	1 45158 109163	11283 154482	11 009214	573
56	1 33874 954681	11294 163696	11 009787	572
89 55	1 22580 790985	11305 173483	11 010359	576
54	1 11275 617502	11316 183842	11 010935	572
53	0 99959 433660	11327 194777	11 011507	577
52	0 88632 238883	11338 206284	11 012084	574
51	0 77294 032599	11349 218368	11 012658	577
89 50	0 65944 814231	11360 231026	11 013235	577
49	0 54584 583205	11371 244261	11 013812	576
48	0 43213 338944	11382 258073	11 014388	579
47	0 31831 080871	11393 272461	11 014967	579
46	0 20437 808410	11404 287428	11 015546	577
89 45	0 09033 520982	11415 302974	11 016123	582
44	9 97618 218008	11426 319097	11 016705	580
43	9 86191 898911	11437 335802	11 017285	579
42	9 74754 563109	11448 353087	11 017864	583
41	9 63306 210022	11459 370951	11 018447	582
89 40	9 51846 839071	11470 389398	11 019029	582
39	9 40376 449673	11481 408427	11 019611	584
38	9 28895 041246	11492 428038	11 020195	583
37	9 17402 613208	11503 448233	11 020778	585
36	9 05899 164975	11514 469011	11 021363	585
89 35	8 94384 695964	11525 490374	11 021948	585
34	8 82859 205590	11536 512322	11 022533	586
33	8 71322 693268	11547 534855	11 023119	588
32	8 59775 158413	11558 557974	11 023707	586
31	8 48216 600439	11569 581681	11 024293	590
89 30	8 36647 018758	11580 605974	11 024883	586
29	8 25066 412784	11591 630857	11 025469	590
28	8 13474 781927	11602 656326	11 026059	591
27	8 01872 125601	11613 682385	11 026650	589
26	7 90258 443216	11624 709035	11 027239	591
89 25	7 78633 734181	11635 736274	11 027830	592
24	7 66997 997907	11646 764104	11 028422	591
23	7 55351 233803	11657 792526	11 029013	594
22	7 43693 441277	11668 821539	11 029607	593
21	7 32024 619738	11679 851146	11 030200	594
89 20	7 20344 768592	11690 881346	11 030794	593
	9.993			

## Log Sines

c	log. sin.	$\Delta^1$	$\Delta^2$	$\Delta^3$
	9.993			
89 20	7 20344 768592	11690 881346	11 030794	593
19	7 08653 887246	11701 912140	11 031387	597
18	6 96951 975106	11712 943527	11 031984	595
17	6 85239 031579	11723 975511	11 032579	595
16	6 73515 056068	11735 008090	11 033174	598
89 15	6 61780 047978	11746 041264	11 033772	598
14	6 50034 006714	11757 075036	11 034370	597
13	6 38276 931678	11768 109406	11 034967	599
12	6 26508 822272	11779 144373	11 035566	599
11	6 14729 677899	11790 179939	11 036165	599
89 10	6 02939 497960	11801 216104	11 036764	602
09	5 91138 281856	11812 252868	11 037366	601
08	5 79326 028988	11823 290234	11 037967	600
07	5 67502 738754	11834 328201	11 038567	603
06	5 55668 410553	11845 366768	11 039170	603
89 05	5 43823 043785	11856 405938	11 039773	603
04	5 31966 637847	11867 445711	11 040376	604
03	5 20099 192136	11878 486087	11 040980	604
02	5 08220 706049	11889 527067	11 041584	607
01	4 96331 178982	11900 568651	11 042191	604
89 00	4 84430 610331	11911 610842	11 042795	606
88 99	4 72518 999489	11922 653637	11 043401	609
98	4 60596 345852	11933 697038	11 044010	605
97	4 48662 648814	11944 741048	11 044615	611
96	4 36717 907766	11955 785663	11 045226	606
88 95	4 24762 122103	11966 830889	11 045832	610
94	4 12795 291214	11977 876721	11 046442	611
93	4 00817 414493	11988 923163	11 047053	610
92	3 88828 491330	11999 970216	11 047663	611
91	3 76828 521114	12011 017879	11 048274	611
88 90	3 64817 503235	12022 066153	11 048885	613
89	3 52795 437082	12033 115038	11 049498	613
88	3 40762 322044	12044 164536	11 050111	613
87	3 28718 157508	12055 214647	11 050724	614
86	3 16662 942861	12066 265371	11 051338	616
88 85	3 04596 677490	12077 316709	11 051954	613
84	2 92519 360781	12088 368663	11 052567	618
83	2 80430 992118	12099 421230	11 053185	615
82	2 68331 570888	12110 474415	11 053800	618
81	2 56221 096473	12121 528215	11 054418	617
88 80	2 44099 568258	12132 582633	11 055035	619
	9.993			

## Log Sines

c	log. sin.	$\Delta^1$	$\Delta^2$	$\Delta^3$
	9.993			
88 80	2 44099 568258	12132 582633	11 055035	619
79	2 31966 985625	12143 637668	11 055654	618
78	2 19823 347957	12154 693322	11 056272	620
77	2 07668 654635	12165 749594	11 056892	620
76	1 95502 905041	12176 806486	11 057512	621
88 75	1 83326 098555	12187 863998	11 058133	620
74	1 71138 234557	12198 922131	11 058753	623
73	1 58939 312426	12209 980884	11 059376	622
72	1 46729 331542	12221 040260	11 059998	623
71	1 34508 291282	12232 100258	11 060621	624
88 70	1 22276 191024	12243 160879	11 061245	623
69	1 10033 030145	12254 222124	11 061868	627
68	0 97778 808021	12265 283992	11 062495	623
67	0 85513 524029	12276 346487	11 063118	628
66	0 73237 177542	12287 409605	11 063746	626
88 65	0 60949 767937	12298 473351	11 064372	627
64	0 48651 294586	12309 537723	11 064999	628
63	0 36341 756863	12320 602722	11 065627	629
62	0 24021 154141	12331 668349	11 066256	627
61	0 11689 485792	12342 734605	11 066883	632
88 60	9 99346 751187	12353 801488	11 067515	629
59	9 86992 949699	12364 869003	11 068144	631
58	9 74628 080696	12375 937147	11 068775	632
57	9 62252 143549	12387 005922	11 069407	631
56	9 49865 137627	12398 075329	11 070038	634
88 55	9 37467 062298	12409 145367	11 070672	631
54	9 25057 916931	12420 216039	11 071303	636
53	9 12637 700892	12431 287342	11 071939	634
52	9 00206 413550	12442 359281	11 072573	635
51	8 87764 054269	12453 431854	11 073208	634
88 50	8 75310 622415	12464 505062	11 073842	639
49	8 62846 117353	12475 578904	11 074481	634
48	8 50370 538449	12486 653385	11 075115	640
47	8 37883 885064	12497 728500	11 075755	636
46	8 25386 156564	12508 804255	11 076391	640
88 45	8 12877 352309	12519 880646	11 077031	639
44	8 00357 471663	12530 957677	11 077670	639
43	7 87826 513986	12542 035347	11 078309	642
42	7 75284 478639	12553 113656	11 078951	639
41	7 62731 364983	12564 192607	11 079590	643
88 40	7 50167 172376	12575 272197	11 080233	643
	9.992			

## Log Sines

c	log. sin.	$\Delta^1$	$\Delta^2$	$\Delta^3$
	9.992			
88 40	7 50167 172376	12575 272197	11 080233	643
39	7 37591 900179	12586 352430	11 080876	641
38	7 25005 547749	12597 433306	11 081517	644
37	7 12408 114443	12608 514823	11 082161	645
36	6 99799 599620	12619 596984	11 082806	644
88 35	6 87180 002636	12630 679790	11 083450	645
34	6 74549 322846	12641 763240	11 084095	647
33	6 61907 559606	12652 847335	11 084742	645
32	6 49254 712271	12663 932077	11 085387	648
31	6 36590 780194	12675 017464	11 086035	647
88 30	6 23915 762730	12686 103499	11 086682	649
29	6 11229 659231	12697 190181	11 087331	649
28	5 98532 469050	12708 277512	11 087980	648
27	5 85824 191538	12719 365492	11 088628	652
26	5 73104 826046	12730 454120	11 089280	650
88 25	5 60374 371926	12741 543400	11 089930	651
24	5 47632 828526	12752 633330	11 090581	653
23	5 34880 195196	12763 723911	11 091234	651
22	5 22116 471285	12774 815145	11 091885	653
21	5 09341 656140	12785 907030	11 092538	655
88 20	4 96555 749110	12796 999568	11 093193	654
19	4 83758 749542	12808 092761	11 093847	655
18	4 70950 656781	12819 186608	11 094502	656
17	4 58131 470173	12830 281110	11 095158	654
16	4 45301 189063	12841 376268	11 095812	659
88 15	4 32459 812795	12852 472080	11 096471	657
14	4 19607 340715	12863 568551	11 097128	657
13	4 06743 772164	12874 665679	11 097785	659
12	3 93869 106485	12885 763464	11 098444	659
11	3 80983 343021	12896 861908	11 099103	661
88 10	3 68086 481113	12907 961011	11 099764	659
09	3 55178 520102	12919 060775	11 100423	662
08	3 42259 459327	12930 161198	11 101085	661
07	3 29329 298129	12941 262283	11 101746	662
06	3 16388 035846	12952 364029	11 102408	663
88 05	3 03435 671817	12963 466437	11 103071	664
04	2 90472 205380	12974 569508	11 103735	663
03	2 77497 635872	12985 673243	11 104398	666
02	2 64511 962629	12996 777641	11 105064	664
01	2 51515 184988	13007 882705	11 105728	667
88 00	2 38507 302283	13018 988433	11 106395	665
	9.992			

## Log Sines

c	log. sin.	$\Delta^1$	$\Delta^2$	$\Delta^3$
	9.992			
88 00	2 38507 302283	13018 988433	11 106395	665
87 99	2 25488 313850	13030 094828	11 107060	669
98	2 12458 219022	13041 201888	11 107729	666
97	1 99417 017134	13052 309617	11 108395	669
96	1 86364 707517	13063 418012	11 109064	668
87 95	1 73301 289505	13074 527076	11 109732	671
94	1 60226 762429	13085 636808	11 110403	670
93	1 47141 125621	13096 747211	11 111073	669
92	1 34044 378410	13107 858284	11 111742	673
91	1 20936 520126	13118 970026	11 112415	672
87 90	1 07817 550100	13130 082441	11 113087	671
89	0 94687 467659	13141 195528	11 113758	675
88	0 81546 272131	13152 309286	11 114433	673
87	0 68393 962845	13163 423719	11 115106	674
86	0 55230 539126	13174 538825	11 115780	675
87 85	0 42056 000301	13185 654605	11 116455	676
84	0 28870 345696	13196 771060	11 117131	676
83	0 15673 574636	13207 888191	11 117807	677
82	0 02465 686445	13219 005998	11 118484	678
81	9 89246 680447	13230 124482	11 119162	677
87 80	9 76016 555965	13241 243644	11 119839	679
79	9 62775 312321	13252 363483	11 120518	680
78	9 49522 948838	13263 484001	11 121198	679
77	9 36259 464837	13274 605199	11 121877	680
76	9 22984 859638	13285 727076	11 122557	683
87 75	9 09699 132562	13296 849633	11 123240	680
74	8 96402 282929	13307 972873	11 123920	683
73	8 83094 310056	13319 096793	11 124603	682
72	8 69775 213263	13330 221396	11 125285	685
71	8 56444 991867	13341 346681	11 125970	684
87 70	8 43103 645186	13352 472651	11 126654	684
69	8 29751 172535	13363 599305	11 127338	686
68	8 16387 573230	13374 726643	11 128024	685
67	8 03012 846587	13385 854667	11 128709	687
66	7 89626 991920	13396 983376	11 129396	689
87 65	7 76230 008544	13408 112772	11 130085	685
64	7 62821 895772	13419 242857	11 130770	690
63	7 49402 652915	13430 373627	11 131460	690
62	7 35972 279288	13441 505087	11 132150	687
61	7 22530 774201	13452 637237	11 132837	693
87 60	7 09078 136964	13463 770074	11 133530	689
	9.991			

## Log Sines

c	log. sin.	$\Delta^1$	$\Delta^2$	$\Delta^3$
	9.991			
87 60	7 09078 136964	13463 770074	11 133530	689
59	6 95614 366890	13474 903604	11 134219	693
58	6 82139 463286	13486 037823	11 134912	691
57	6 68653 425463	13497 172735	11 135603	693
56	6 55156 252728	13508 308338	11 136296	694
87 55	6 41647 944390	13519 444634	11 136990	693
54	6 28128 499756	13530 581624	11 137683	695
53	6 14597 918132	13541 719307	11 138378	695
52	6 01056 198825	13552 857685	11 139073	697
51	5 87503 341140	13563 996758	11 139770	695
87 50	5 73939 344382	13575 136528	11 140465	698
49	5 60364 207854	13586 276993	11 141163	696
48	5 46777 930861	13597 418156	11 141859	701
47	5 33180 512705	13608 560015	11 142560	697
46	5 19571 952690	13619 702575	11 143257	699
87 45	5 05952 250115	13630 845832	11 143956	702
44	4 92321 404283	13641 989788	11 144658	700
43	4 78679 414495	13653 134446	11 145358	700
42	4 65026 280049	13664 279804	11 146058	704
41	4 51362 000245	13675 425862	11 146762	702
87 40	4 37686 574383	13686 572624	11 147464	702
39	4 24000 001759	13697 720088	11 148166	705
38	4 10302 281671	13708 868254	11 148871	705
37	3 96593 413417	13720 017125	11 149576	703
36	3 82873 396292	13731 166701	11 150279	708
87 35	3 69142 229591	13742 316980	11 150987	705
34	3 55399 912611	13753 467967	11 151692	707
33	3 41646 444644	13764 619659	11 152399	707
32	3 27881 824985	13775 772058	11 153106	710
31	3 14106 052927	13786 925164	11 153816	706
87 30	3 00319 127763	13798 078980	11 154522	712
29	2 86521 048783	13809 233502	11 155234	709
28	2 72711 815281	13820 388736	11 155943	711
27	2 58891 426545	13831 544679	11 156654	710
26	2 45059 881866	13842 701333	11 157364	713
87 25	2 31217 180533	13853 858697	11 158077	711
24	2 17363 321836	13865 016774	11 158788	716
23	2 03498 305062	13876 175562	11 159504	711
22	1 89622 129500	13887 335066	11 160215	715
21	1 75734 794434	13898 495281	11 160930	716
87 20	1 61836 299153	13909 656211	11 161646	714
	9.991			

## Log Sines

c	log. sin.	$\Delta^1$	$\Delta^2$	$\Delta^3$
	9.991			
87 20	1 61836 299153	13909 656211	11 161646	714
19	1 47926 642942	13920 817857	11 162360	718
18	1 34005 825085	13931 980217	11 163078	715
17	1 20073 844868	13943 143295	11 163793	718
16	1 06130 701573	13954 307088	11 164511	719
87 15	0 92176 394485	13965 471599	11 165230	718
14	0 78210 922886	13976 636829	11 165948	718
13	0 64234 286057	13987 802777	11 166666	722
12	0 50246 483280	13998 969443	11 167388	720
11	0 36247 513837	14010 136831	11 168108	721
87 10	0 22237 377006	14021 304939	11 168829	721
09	0 08216 072067	14032 473768	11 169550	723
08	9 94183 598299	14043 643318	11 170273	723
07	9 80139 954981	14054 813591	11 170996	724
06	9 66085 141390	14065 984587	11 171720	724
87 05	9 52019 156803	14077 156307	11 172444	724
04	9 37942 000496	14088 328751	11 173168	727
03	9 23853 671745	14099 501919	11 173895	725
02	9 09754 169826	14110 675814	11 174620	728
01	8 95643 494012	14121 850434	11 175348	726
87 00	8 81521 643578	14133 025782	11 176074	728
86 99	8 67388 617796	14144 201856	11 176802	730
98	8 53244 415940	14155 378658	11 177532	728
97	8 39089 037282	14166 556190	11 178260	730
96	8 24922 481092	14177 734450	11 178990	731
86 95	8 10744 746642	14188 913440	11 179721	731
94	7 96555 833202	14200 093161	11 180452	732
93	7 82355 740041	14211 273613	11 181184	731
92	7 68144 466428	14222 454797	11 181915	735
91	7 53922 011631	14233 636712	11 182650	732
86 90	7 39688 374919	14244 819362	11 183382	735
89	7 25443 555557	14256 002744	11 184117	734
88	7 11187 552813	14267 186861	11 184851	736
87	6 96920 365952	14278 371712	11 185587	737
86	6 82641 994240	14289 557299	11 186324	735
86 85	6 68352 436941	14300 743623	11 187059	739
84	6 54051 693318	14311 930682	11 187798	737
83	6 39739 762636	14323 118480	11 188535	739
82	6 25416 644156	14334 307015	11 189274	739
81	6 11082 337141	14345 496289	11 190013	740
86 80	5 96736 840852	14356 686302	11 190753	740
	9.990			



## Log Sines

c	log. sin.	$\Delta^1$	$\Delta^2$	$\Delta^3$
	9.990			
86 80	5 96736 840852	14356 686302	11 190753	740
79	5 82380 154550	14367 877055	11 191493	742
78	5 68012 277495	14379 068548	11 192235	741
77	5 53633 208947	14390 260783	11 192976	742
76	5 39242 948164	14401 453759	11 193718	745
86 75	5 24841 494405	14412 647477	11 194463	741
74	5 10428 846928	14423 841940	11 195204	746
73	4 96005 004988	14435 037144	11 195950	744
72	4 81569 967844	14446 233094	11 196694	745
71	4 67123 734750	14457 429788	11 197439	748
86 70	4 52666 304962	14468 627227	11 198187	745
69	4 38197 677735	14479 825414	11 198932	748
68	4 23717 852321	14491 024346	11 199680	749
67	4 09226 827975	14502 224026	11 200429	747
66	3 94724 603949	14513 424455	11 201176	749
86 65	3 80211 179494	14524 625631	11 201925	752
64	3 65686 553863	14535 827556	11 202677	748
63	3 51150 726307	14547 030233	11 203425	754
62	3 36603 696074	14558 233658	11 204179	749
61	3 22045 462416	14569 437837	11 204928	754
86 60	3 07476 024579	14580 642765	11 205682	752
59	2 92895 381814	14591 848447	11 206434	755
58	2 78303 533367	14603 054881	11 207189	753
57	2 63700 478486	14614 262070	11 207942	756
56	2 49086 216416	14625 470012	11 208698	754
86 55	2 34460 746404	14636 678710	11 209452	758
54	2 19824 067694	14647 888162	11 210210	756
53	2 05176 179532	14659 098372	11 210966	757
52	1 90517 081160	14670 309338	11 211723	758
51	1 75846 771822	14681 521061	11 212481	760
86 50	1 61165 250761	14692 733542	11 213241	758
49	1 46472 517219	14703 946783	11 213999	760
48	1 31768 570436	14715 160782	11 214759	762
47	1 17053 409654	14726 375541	11 215521	759
46	1 02327 034113	14737 591062	11 216280	764
86 45	0 87589 443051	14748 807342	11 217044	761
44	0 72840 635709	14760 024386	11 217805	764
43	0 58080 611323	14771 242191	11 218569	763
42	0 43309 369132	14782 460760	11 219332	765
41	0 28526 908372	14793 680092	11 220097	765
86 40	0 13733 228280	14804 900189	11 220862	764
	9.990			

## Log Sines

c	log. sin.	$\Delta^1$	$\Delta^2$	$\Delta^3$
	9.990			
86 40	0 13733 228280	14804 900189	11 220862	764
39	9 98928 328091	14816 121051	11 221626	769
38	9 84112 207040	14827 342677	11 222395	765
37	9 69284 864363	14838 565072	11 223160	768
36	9 54446 299291	14849 788232	11 223928	769
86 35	9 39596 511059	14861 012160	11 224697	767
34	9 24735 498899	14872 236857	11 225464	771
33	9 09863 262042	14883 462321	11 226235	769
32	8 94979 799721	14894 688556	11 227004	772
31	8 80085 111165	14905 915560	11 227776	770
86 30	8 65179 195605	14917 143336	11 228546	773
29	8 50262 052269	14928 371882	11 229319	771
28	8 35333 680387	14939 601201	11 230090	776
27	8 20394 079186	14950 831291	11 230866	771
26	8 05443 247895	14962 062157	11 231637	776
86 25	7 90481 185738	14973 293794	11 232413	774
24	7 75507 891944	14984 526207	11 233187	778
23	7 60523 365737	14995 759394	11 233965	774
22	7 45527 606343	15006 993359	11 234739	779
21	7 30520 612984	15018 228098	11 235518	776
86 20	7 15502 384886	15029 463616	11 236294	779
19	7 00472 921270	15040 699910	11 237073	779
18	6 85432 221360	15051 936983	11 237852	780
17	6 70380 284377	15063 174835	11 238632	779
16	6 55317 109542	15074 413467	11 239411	782
86 15	6 40242 696075	15085 652878	11 240193	781
14	6 25157 043197	15096 893071	11 240974	782
13	6 10060 150126	15108 134045	11 241756	784
12	5 94952 016081	15119 375801	11 242540	781
11	5 79832 640280	15130 618341	11 243321	787
86 10	5 64702 021939	15141 861662	11 244108	782
09	5 49560 160277	15153 105770	11 244890	786
08	5 34407 054507	15164 350660	11 245676	787
07	5 19242 703847	15175 596336	11 246463	786
06	5 04067 107511	15186 842799	11 247249	787
86 05	4 88880 264712	15198 090048	11 248036	788
04	4 73682 174664	15209 338084	11 248824	788
03	4 58472 836580	15220 586908	11 249612	791
02	4 43252 249672	15231 836520	11 250403	787
01	4 28020 413152	15243 086923	11 251190	792
86 00	4 12777 326229	15254 338113	11 251982	792
	9.989			

## Log Sines

c	log. sin.	$\Delta^1$	$\Delta^2$	$\Delta^3$
	9.989			
86 00	4 12777 326229	15254 338113	11 251982	792
85 99	3 97522 988116	15265 590095	11 252774	789
98	3 82257 398021	15276 842869	11 253563	795
97	3 66980 555152	15288 096432	11 254358	791
96	3 51692 458720	15299 350790	11 255149	795
85 95	3 36393 107930	15310 605939	11 255944	794
94	3 21082 501991	15321 861883	11 256738	794
93	3 05760 640108	15333 118621	11 257532	796
92	2 90427 521487	15344 376153	11 258328	797
91	2 75083 145334	15355 634481	11 259125	795
85 90	2 59727 510853	15366 893606	11 259920	799
89	2 44360 617247	15378 153526	11 260719	798
88	2 28982 463721	15389 414245	11 261517	798
87	2 13593 049476	15400 675762	11 262315	800
86	1 98192 373714	15411 938077	11 263115	799
85 85	1 82780 435637	15423 201192	11 263914	802
84	1 67357 234445	15434 465106	11 264716	800
83	1 51922 769339	15445 729822	11 265516	803
82	1 36477 039517	15456 995338	11 266319	802
81	1 21020 044179	15468 261657	11 267121	804
85 80	1 05551 782522	15479 528778	11 267925	803
79	0 90072 253744	15490 796703	11 268728	804
78	0 74581 457041	15502 065431	11 269532	806
77	0 59079 391610	15513 334963	11 270338	806
76	0 43566 056647	15524 605301	11 271144	806
85 75	0 28041 451346	15535 876445	11 271950	807
74	0 12505 574901	15547 148395	11 272757	808
73	9 96958 426506	15558 421152	11 273565	808
72	9 81400 005354	15569 694717	11 274373	810
71	9 65830 310637	15580 969090	11 275183	808
85 70	9 50249 341547	15592 244273	11 275991	811
69	9 34657 097274	15603 520264	11 276802	812
68	9 19053 577010	15614 797066	11 277614	810
67	9 03438 779944	15626 074680	11 278424	813
66	8 87812 705264	15637 353104	11 279237	812
85 65	8 72175 352160	15648 632341	11 280049	815
64	8 56526 719819	15659 912390	11 280864	813
63	8 40866 807429	15671 193254	11 281677	816
62	8 25195 614175	15682 474931	11 282493	814
61	8 09513 139244	15693 757424	11 283307	817
85 60	7 93819 381820	15705 040731	11 284124	816
	9.988			

## Log Sines

c	log. sin.	$\Delta^1$	$\Delta^2$	$\Delta^3$
	9.988			
85 60	7 93819 381820	15705 040731	11 284124	816
59	7 78114 341089	15716 324855	11 284940	818
58	7 62398 016234	15727 609795	11 285758	818
57	7 46670 406439	15738 895553	11 286576	818
56	7 30931 510886	15750 182129	11 287394	820
85 55	7 15181 328757	15761 469523	11 288214	820
54	6 99419 859234	15772 757737	11 289034	821
53	6 83647 101497	15784 046771	11 289855	820
52	6 67863 054726	15795 336626	11 290675	823
51	6 52067 718100	15806 627301	11 291498	821
85 50	6 36261 090799	15817 918799	11 292319	825
49	6 20443 172000	15829 211118	11 293144	824
48	6 04613 960882	15840 504262	11 293968	823
47	5 88773 456620	15851 798230	11 294791	825
46	5 72921 658390	15863 093021	11 295616	828
85 45	5 57058 565369	15874 388637	11 296444	824
44	5 41184 176732	15885 685081	11 297268	828
43	5 25298 491651	15896 982349	11 298096	828
42	5 09401 509302	15908 280445	11 298924	829
41	4 93493 228857	15919 579369	11 299753	827
85 40	4 77573 649488	15930 879122	11 300580	832
39	4 61642 770366	15942 179702	11 301412	829
38	4 45700 590664	15953 481114	11 302241	831
37	4 29747 109550	15964 783355	11 303072	832
36	4 13782 326195	15976 086427	11 303904	832
85 35	3 97806 239768	15987 390331	11 304736	833
34	3 81818 849437	15998 695067	11 305569	834
33	3 65820 154370	16010 000636	11 306403	833
32	3 49810 153734	16021 307039	11 307236	837
31	3 33788 846695	16032 614275	11 308073	833
85 30	3 17756 232420	16043 922348	11 308906	838
29	3 01712 310072	16055 231254	11 309744	837
28	2 85657 078818	16066 540998	11 310581	836
27	2 69590 537820	16077 851579	11 311417	839
26	2 53512 686241	16089 162996	11 312256	838
85 25	2 37423 523245	16100 475252	11 313094	841
24	2 21323 047993	16111 788346	11 313935	839
23	2 05211 259647	16123 102281	11 314774	841
22	1 89088 157366	16134 417055	11 315615	841
21	1 72953 740311	16145 732670	11 316456	843
85 20	1 56808 007641	16157 049126	11 317299	841
	9.988			

## Log Sines

c		log. sin.	$\Delta^1$	$\Delta^2$	$\Delta^3$
		9.988			
85	20	1 56808 007641	16157 049126	11 317299	841
	19	1 40650 958515	16168 366425	11 318140	845
	18	1 24482 592090	16179 684565	11 318985	844
	17	1 08302 907525	16191 003550	11 319829	843
	16	0 92111 903975	16202 323379	11 320672	847
85	15	0 75909 580596	16213 644051	11 321519	845
	14	0 59695 936545	16224 965570	11 322364	847
	13	0 43470 970975	16236 287934	11 323211	848
	12	0 27234 683041	16247 611145	11 324059	846
	11	0 10987 071896	16258 935204	11 324905	850
85	10	9 94728 136692	16270 260109	11 325755	849
	09	9 78457 876583	16281 585864	11 326604	850
	08	9 62176 290719	16292 912468	11 327454	851
	07	9 45883 378251	16304 239922	11 328305	850
	06	9 29579 138329	16315 568227	11 329155	852
85	05	9 13263 570102	16326 897382	11 330007	853
	04	8 96936 672720	16338 227389	11 330860	853
	03	8 80598 445331	16349 558249	11 331713	855
	02	8 64248 887082	16360 889962	11 332568	852
	01	8 47887 997120	16372 222530	11 333420	857
85	00	8 31515 774590	16383 555950	11 334277	856
84	99	8 15132 218640	16394 890227	11 335133	855
	98	7 98737 328413	16406 225360	11 335988	858
	97	7 82331 103053	16417 561348	11 336846	857
	96	7 65913 541705	16428 898194	11 337703	860
84	95	7 49484 643511	16440 235897	11 338563	857
	94	7 33044 407614	16451 574460	11 339420	861
	93	7 16592 833154	16462 913880	11 340281	861
	92	7 00129 919274	16474 254161	11 341142	860
	91	6 83655 665113	16485 595303	11 342002	861
84	90	6 67170 069810	16496 937305	11 342863	864
	89	6 50673 132505	16508 280168	11 343727	862
	88	6 34164 852337	16519 623895	11 344589	864
	87	6 17645 228442	16530 968484	11 345453	864
	86	6 01114 259958	16542 313937	11 346317	866
84	85	5 84571 946021	16553 660254	11 347183	865
	84	5 68018 285767	16565 007437	11 348048	865
	83	5 51453 278330	16576 355485	11 348913	869
	82	5 34876 922845	16587 704398	11 349782	867
	81	5 18289 218447	16599 054180	11 350649	868
84	80	5 01690 164267	16610 404829	11 351517	869
		9.987			

## Log Sines

c	log. sin.	$\Delta^1$	$\Delta^2$	$\Delta^3$
	9.987			
84 80	5 01690 164267	16610 404829	11 351517	869
79	4 85079 759438	16621 756346	11 352386	869
78	4 68458 003092	16633 108732	11 353255	872
77	4 51824 894360	16644 461987	11 354127	869
76	4 35180 432373	16655 816114	11 354996	873
84 75	4 18524 616259	16667 171110	11 355869	871
74	4 01857 445149	16678 526979	11 356740	874
73	3 85178 918170	16689 883719	11 357614	874
72	3 68489 034451	16701 241333	11 358488	872
71	3 51787 793118	16712 599821	11 359360	877
84 70	3 35075 193297	16723 959181	11 360237	875
69	3 18351 234116	16735 319418	11 361112	876
68	3 01615 914698	16746 680530	11 361988	877
67	2 84869 234168	16758 042518	11 362865	877
66	2 68111 191650	16769 405383	11 363742	879
84 65	2 51341 786267	16780 769125	11 364621	879
64	2 34561 017142	16792 133746	11 365500	879
63	2 17768 883396	16803 499246	11 366379	879
62	2 00965 384150	16814 865625	11 367258	884
61	1 84150 518525	16826 232883	11 368142	878
84 60	1 67324 285642	16837 601025	11 369020	885
59	1 50486 684617	16848 970045	11 369905	881
58	1 33637 714572	16860 339950	11 370786	885
57	1 16777 374622	16871 710736	11 371671	883
56	0 99905 663886	16883 082407	11 372554	885
84 55	0 83022 581479	16894 454961	11 373439	886
54	0 66128 126518	16905 828400	11 374325	886
53	0 49222 298118	16917 202725	11 375211	886
52	0 32305 095393	16928 577936	11 376097	889
51	0 15376 517457	16939 954033	11 376986	887
84 50	9 98436 563424	16951 331019	11 377873	889
49	9 81485 232405	16962 708892	11 378762	890
48	9 64522 523513	16974 087654	11 379652	890
47	9 47548 435859	16985 467306	11 380542	891
46	9 30562 968553	16996 847848	11 381433	891
84 45	9 13566 120705	17008 229281	11 382324	892
44	8 96557 891424	17019 611605	11 383216	894
43	8 79538 279819	17030 994821	11 384110	892
42	8 62507 284998	17042 378931	11 385002	895
41	8 45464 906067	17053 763933	11 385897	895
84 40	8 28411 142134	17065 149830	11 386792	895
	9.986			

## Log Sines

c	log. sin.	$\Delta^1$	$\Delta^2$	$\Delta^3$
	9.986			
84 40	8 28411 142134	17065 149830	11 386792	895
39	8 11345 992304	17076 536622	11 387687	896
38	7 94269 455682	17087 924309	11 388583	897
37	7 77181 531373	17099 312892	11 389480	898
36	7 60082 218481	17110 702372	11 390378	898
84 35	7 42971 516109	17122 092750	11 391276	899
34	7 25849 423359	17133 484026	11 392175	899
33	7 08715 939333	17144 876201	11 393074	900
32	6 91571 063132	17156 269275	11 393974	901
31	6 74414 793857	17167 663249	11 394875	902
84 30	6 57247 130608	17179 058124	11 395777	902
29	6 40068 072484	17190 453901	11 396679	903
28	6 22877 618583	17201 850580	11 397582	903
27	6 05675 768003	17213 248162	11 398485	904
26	5 88462 519841	17224 646647	11 399389	906
84 25	5 71237 873194	17236 046036	11 400295	905
24	5 54001 827158	17247 446331	11 401200	905
23	5 36754 380827	17258 847531	11 402105	909
22	5 19495 533296	17270 249636	11 403014	906
21	5 02225 283660	17281 652650	11 403920	909
84 20	4 84943 631010	17293 056570	11 404829	908
19	4 67650 574440	17304 461399	11 405737	911
18	4 50346 113041	17315 867136	11 406648	909
17	4 33030 245905	17327 273784	11 407557	911
16	4 15702 972121	17338 681341	11 408468	912
84 15	3 98364 290780	17350 089809	11 409380	912
14	3 81014 200971	17361 499189	11 410292	913
13	3 63652 701782	17372 909481	11 411205	914
12	3 46279 792301	17384 320686	11 412119	914
11	3 28895 471615	17395 732805	11 413033	914
84 10	3 11499 738810	17407 145838	11 413947	917
09	2 94092 592972	17418 559785	11 414864	915
08	2 76674 033187	17429 974649	11 415779	919
07	2 59244 058538	17441 390428	11 416698	915
06	2 41802 668110	17452 807126	11 417613	920
84 05	2 24349 860984	17464 224739	11 418533	919
04	2 06885 636245	17475 643272	11 419452	919
03	1 89409 992973	17487 062724	11 420371	920
02	1 71922 930249	17498 483095	11 421291	922
01	1 54424 447154	17509 904386	11 422213	922
84 00	1 36914 542768	17521 326599	11 423135	920
	9.986			

## Log Sines

c	log. sin.	$\Delta^1$	$\Delta^2$	$\Delta^3$
	9.986			
84 00	1 36914 542768	17521 326599	11 423135	920
83 99	1 19393 216169	17532 749734	11 424055	926
98	1 01860 466435	17544 173789	11 424981	922
97	0 84316 292646	17555 598770	11 425903	925
96	0 66760 693876	17567 024673	11 426828	924
83 95	0 49193 669203	17578 451501	11 427752	927
94	0 31615 217702	17589 879253	11 428679	926
93	0 14025 338449	17601 307932	11 429605	927
92	9 96424 030517	17612 737537	11 430532	928
91	9 78811 292980	17624 168069	11 431460	928
83 90	9 61187 124911	17635 599529	11 432388	929
89	9 43551 525382	17647 031917	11 433317	930
88	9 25904 493465	17658 465234	11 434247	932
87	9 08246 028231	17669 899481	11 435179	928
86	8 90576 128750	17681 334660	11 436107	935
83 85	8 72894 794090	17692 770767	11 437042	931
84	8 55202 023323	17704 207809	11 437973	933
83	8 37497 815514	17715 645782	11 438906	934
82	8 19782 169732	17727 084688	11 439840	935
81	8 02055 085044	17738 524528	11 440775	934
83 80	7 84316 560516	17749 965303	11 441709	938
79	7 66566 595213	17761 407012	11 442647	935
78	7 48805 188201	17772 849659	11 443582	938
77	7 31032 338542	17784 293241	11 444520	938
76	7 13248 045301	17795 737761	11 445458	937
83 75	6 95452 307540	17807 183219	11 446395	942
74	6 77645 124321	17818 629614	11 447337	938
73	6 59826 494707	17830 076951	11 448275	941
72	6 41996 417756	17841 525226	11 449216	942
71	6 24154 892530	17852 974442	11 450158	941
83 70	6 06301 918088	17864 424600	11 451099	944
69	5 88437 493488	17875 875699	11 452043	942
68	5 70561 617789	17887 327742	11 452985	945
67	5 52674 290047	17898 780727	11 453930	945
66	5 34775 509320	17910 234657	11 454875	945
83 65	5 16865 274663	17921 689532	11 455820	945
64	4 98943 585131	17933 145352	11 456765	949
63	4 81010 439779	17944 602117	11 457714	946
62	4 63065 837662	17956 059831	11 458660	949
61	4 45109 777831	17967 518491	11 459609	948
83 60	4 27142 259340	17978 978100	11 460557	950
	9.985			



## Log Sines

c	log. sin.	$\Delta^1$	$\Delta^2$	$\Delta^3$
	9.985			
83 60	4 27142 259340	17978 978100	11 460557	950
59	4 09163 281240	17990 438657	11 461507	950
58	3 91172 842583	18001 900164	11 462457	951
57	3 73170 942419	18013 362621	11 463408	952
56	3 55157 579798	18024 826029	11 464360	952
83 55	3 37132 753769	18036 290389	11 465312	953
54	3 19096 463380	18047 755701	11 466265	953
53	3 01048 707679	18059 221966	11 467218	955
52	2 82989 485713	18070 689184	11 468173	955
51	2 64918 796529	18082 157357	11 469128	955
83 50	2 46836 639172	18093 626485	11 470083	958
49	2 28743 012687	18105 096568	11 471041	955
48	2 10637 916119	18116 567609	11 471996	959
47	1 92521 348510	18128 039605	11 472955	959
46	1 74393 308905	18139 512560	11 473914	957
83 45	1 56253 796345	18150 986474	11 474871	962
44	1 38102 809871	18162 461345	11 475833	960
43	1 19940 348526	18173 937178	11 476793	960
42	1 01766 411348	18185 413971	11 477753	963
41	0 83580 997377	18196 891724	11 478716	962
83 40	0 65384 105653	18208 370440	11 479678	964
39	0 47175 735213	18219 850118	11 480642	963
38	0 28955 885095	18231 330760	11 481605	965
37	0 10724 554335	18242 812365	11 482570	966
36	9 92481 741970	18254 294935	11 483536	965
83 35	9 74227 447035	18265 778471	11 484501	967
34	9 55961 668564	18277 262972	11 485468	967
33	9 37684 405592	18288 748440	11 486435	969
32	9 19395 657152	18300 234875	11 487404	968
31	9 01095 422277	18311 722279	11 488372	970
83 30	8 82783 699998	18323 210651	11 489342	970
29	8 64460 489347	18334 699993	11 490312	971
28	8 46125 789354	18346 190305	11 491283	970
27	8 27779 599049	18357 681588	11 492253	974
26	8 09421 917461	18369 173841	11 493227	973
83 25	7 91052 743620	18380 667068	11 494200	972
24	7 72672 076552	18392 161268	11 495172	976
23	7 54279 915284	18403 656440	11 496148	973
22	7 35876 258844	18415 152588	11 497121	978
21	7 17461 106256	18426 649709	11 498099	974
83 20	6 99034 456547	18438 147808	11 499073	979
	9.984			

## Log Sines

c		log. sin.	$\Delta^1$	$\Delta^2$	$\Delta^3$
		9.984			
83	20	6 99034 456547	18438 147808	11 499073	979
	19	6 80596 308739	18449 646881	11 500052	977
	18	6 62146 661858	18461 146933	11 501029	978
	17	6 43685 514925	18472 647962	11 502007	980
	16	6 25212 866963	18484 149969	11 502987	979
83	15	6 06728 716994	18495 652956	11 503966	981
	14	5 88233 064038	18507 156922	11 504947	980
	13	5 69725 907116	18518 661869	11 505927	984
	12	5 51207 245247	18530 167796	11 506911	981
	11	5 32677 077451	18541 674707	11 507892	984
83	10	5 14135 402744	18553 182599	11 508876	984
	09	4 95582 220145	18564 691475	11 509860	984
	08	4 77017 528670	18576 201335	11 510844	987
	07	4 58441 327335	18587 712179	11 511831	983
	06	4 39853 615156	18599 224010	11 512814	990
83	05	4 21254 391146	18610 736824	11 513804	986
	04	4 02643 654322	18622 250628	11 514790	988
	03	3 84021 403694	18633 765418	11 515778	988
	02	3 65387 638276	18645 281196	11 516766	992
	01	3 46742 357080	18656 797962	11 517758	988
83	00	3 28085 559118	18668 315720	11 518746	992
82	99	3 09417 243398	18679 834466	11 519738	992
	98	2 90737 408932	18691 354204	11 520730	991
	97	2 72046 054728	18702 874934	11 521721	994
	96	2 53343 179794	18714 396655	11 522715	993
82	95	2 34628 783139	18725 919370	11 523708	996
	94	2 15902 863769	18737 443078	11 524704	993
	93	1 97165 420691	18748 967782	11 525697	997
	92	1 78416 452909	18760 493479	11 526694	996
	91	1 59655 959430	18772 020173	11 527690	998
82	90	1 40883 939257	18783 547863	11 528688	997
	89	1 22100 391394	18795 076551	11 529685	999
	88	1 03305 314843	18806 606236	11 530684	999
	87	0 84498 708607	18818 136920	11 531683	1001
	86	0 65680 571687	18829 668603	11 532684	1000
82	85	0 46850 903084	18841 201287	11 533684	1001
	84	0 28009 701797	18852 734971	11 534685	1002
	83	0 09156 966826	18864 269656	11 535687	1004
	82	9 90292 697170	18875 805343	11 536691	1003
	81	9 71416 891827	18887 342034	11 537694	1003
82	80	9 52529 549793	18898 879728	11 538697	1007
		9.983			

## Log Sines

c	log. sin.	$\Delta^1$	$\Delta^2$	$\Delta^3$
	9.983			
82 80	9 52529 549793	18898 879728	11 538697	1007
79	9 33630 670065	18910 418425	11 539704	1004
78	9 14720 251640	18921 958129	11 540708	1007
77	8 95798 293511	18933 498837	11 541715	1006
76	8 76864 794674	18945 040552	11 542721	1009
82 75	8 57919 754122	18956 583273	11 543730	1008
74	8 38963 170849	18968 127003	11 544738	1009
73	8 19995 043846	18979 671741	11 545747	1010
72	8 01015 372105	18991 217488	11 546757	1010
71	7 82024 154617	19002 764245	11 547767	1012
82 70	7 63021 390372	19014 312012	11 548779	1011
69	7 44007 078360	19025 860791	11 549790	1013
68	7 24981 217569	19037 410581	11 550803	1014
67	7 05943 806988	19048 961384	11 551817	1013
66	6 86894 845604	19060 513201	11 552830	1015
82 65	6 67834 332403	19072 066031	11 553845	1016
64	6 48762 266372	19083 619876	11 554861	1015
63	6 29678 646496	19095 174737	11 555876	1018
62	6 10583 471759	19106 730613	11 556894	1018
61	5 91476 741146	19118 287507	11 557912	1016
82 60	5 72358 453639	19129 845419	11 558928	1021
59	5 53228 608220	19141 404347	11 559949	1019
58	5 34087 203873	19152 964296	11 560968	1020
57	5 14934 239577	19164 525264	11 561988	1022
56	4 95769 714313	19176 087252	11 563010	1021
82 55	4 76593 627061	19187 650262	11 564031	1023
54	4 57405 976799	19199 214293	11 565054	1022
53	4 38206 762506	19210 779347	11 566076	1026
52	4 18995 983159	19222 345423	11 567102	1022
51	3 99773 637736	19233 912525	11 568124	1028
82 50	3 80539 725211	19245 480649	11 569152	1024
49	3 61294 244562	19257 049801	11 570176	1028
48	3 42037 194761	19268 619977	11 571204	1027
47	3 22768 574784	19280 191181	11 572231	1027
46	3 03488 383603	19291 763412	11 573258	1031
82 45	2 84196 620191	19303 336670	11 574289	1028
44	2 64893 283521	19314 910959	11 575317	1031
43	2 45578 372562	19326 486276	11 576348	1030
42	2 26251 886286	19338 062624	11 577378	1033
41	2 06913 823662	19349 640002	11 578411	1032
82 40	1 87564 183660	19361 218413	11 579443	1032
	9.983			

## Log Sines

c		log. sin.	$\Delta^1$	$\Delta^2$	$\Delta^3$
		9.983			
82	40	1 87564 183660	19361 218413	11 579443	1032
	39	1 68202 965247	19372 797856	11 580475	1036
	38	1 48830 167391	19384 378331	11 581511	1032
	37	1 29445 789060	19395 959842	11 582543	1037
	36	1 10049 829218	19407 542385	11 583580	1036
82	35	0 90642 286833	19419 125965	11 584616	1035
	34	0 71223 160868	19430 710581	11 585651	1039
	33	0 51792 450287	19442 296232	11 586690	1038
	32	0 32350 154055	19453 882922	11 587728	1038
	31	0 12896 271133	19465 470650	11 588766	1040
82	30	9 93430 800483	19477 059416	11 589806	1039
	29	9 73953 741067	19488 649222	11 590845	1043
	28	9 54465 091845	19500 240067	11 591888	1040
	27	9 34964 851778	19511 831955	11 592928	1044
	26	9 15453 019823	19523 424883	11 593972	1041
82	25	8 95929 594940	19535 018855	11 595013	1045
	24	8 76394 576085	19546 613868	11 596058	1045
	23	8 56847 962217	19558 209926	11 597103	1044
	22	8 37289 752291	19569 807029	11 598147	1046
	21	8 17719 945262	19581 405176	11 599193	1047
82	20	7 98138 540086	19593 004369	11 600240	1048
	19	7 78545 535717	19604 604609	11 601288	1048
	18	7 58940 931108	19616 205897	11 602336	1047
	17	7 39324 725211	19627 808233	11 603383	1051
	16	7 19696 916978	19639 411616	11 604434	1051
82	15	7 00057 505362	19651 016050	11 605485	1049
	14	6 80406 489312	19662 621535	11 606534	1052
	13	6 60743 867777	19674 228069	11 607586	1053
	12	6 41069 639708	19685 835655	11 608639	1054
	11	6 21383 804053	19697 444294	11 609693	1052
82	10	6 01686 359759	19709 053987	11 610745	1055
	09	5 81977 305772	19720 664732	11 611800	1055
	08	5 62256 641040	19732 276532	11 612855	1057
	07	5 42524 364508	19743 889387	11 613912	1056
	06	5 22780 475121	19755 503299	11 614968	1058
82	05	5 03024 971822	19767 118267	11 616026	1056
	04	4 83257 853555	19778 734293	11 617082	1061
	03	4 63479 119262	19790 351375	11 618143	1059
	02	4 43688 767887	19801 969518	11 619202	1060
	01	4 23886 798369	19813 588720	11 620262	1061
82	00	4 04073 209649	19825 208982	11 621323	1061
		9.982			

## Log Sines

c	log. sin.	$\Delta^1$	$\Delta^2$	$\Delta^3$
	9.982			
82 00	4 04073 209649	19825 208982	11 621323	1061
81 99	3 84248 000667	19836 830305	11 622384	1064
98	3 64411 170362	19848 452689	11 623448	1062
97	3 44562 717673	19860 076137	11 624510	1063
96	3 24702 641536	19871 700647	11 625573	1067
81 95	3 04830 940889	19883 326220	11 626640	1063
94	2 84947 614669	19894 952860	11 627703	1067
93	2 65052 661809	19906 580563	11 628770	1067
92	2 45146 081246	19918 209333	11 629837	1066
91	2 25227 871913	19929 839170	11 630903	1070
81 90	2 05298 032743	19941 470073	11 631973	1068
89	1 85356 562670	19953 102046	11 633041	1069
88	1 65403 460624	19964 735087	11 634110	1072
87	1 45438 725537	19976 369197	11 635182	1069
86	1 25462 356340	19988 004379	11 636251	1074
81 85	1 05474 351961	19999 640630	11 637325	1070
84	0 85474 711331	20011 277955	11 638395	1075
83	0 65463 433376	20022 916350	11 639470	1074
82	0 45440 517026	20034 555820	11 640544	1074
81	0 25405 961206	20046 196364	11 641618	1075
81 80	0 05359 764842	20057 837982	11 642693	1076
79	9 85301 926860	20069 480675	11 643769	1078
78	9 65232 446185	20081 124444	11 644847	1078
77	9 45151 321741	20092 769291	11 645925	1076
76	9 25058 552450	20104 415216	11 647001	1080
81 75	9 04954 137234	20116 062217	11 648081	1081
74	8 84838 075017	20127 710298	11 649162	1079
73	8 64710 364719	20139 359460	11 650241	1082
72	8 44571 005259	20151 009701	11 651323	1081
71	8 24419 995558	20162 661024	11 652404	1083
81 70	8 04257 334534	20174 313428	11 653487	1084
69	7 84083 021106	20185 966915	11 654571	1083
68	7 63897 054191	20197 621486	11 655654	1086
67	7 43699 432705	20209 277140	11 656740	1085
66	7 23490 155565	20220 933880	11 657825	1085
81 65	7 03269 221685	20232 591705	11 658910	1089
64	6 83036 629980	20244 250615	11 659999	1087
63	6 62792 379365	20255 910614	11 661086	1089
62	6 42536 468751	20267 571700	11 662175	1088
61	6 22268 897051	20279 233875	11 663263	1090
81 60	6 01989 663176	20290 897138	11 664353	1091
	9.981			

## Log Sines

c		log. sin.	$\Delta^1$	$\Delta^2$	$\Delta^3$
		9.981			
81	60	6 01989 663176	20290 897138	11 664353	1091
	59	5 81698 766038	20302 561491	11 665444	1092
	58	5 61396 204547	20314 226935	11 666536	1091
	57	5 41081 977612	20325 893471	11 667627	1094
	56	5 20756 084141	20337 561098	11 668721	1092
81	55	5 00418 523043	20349 229819	11 669813	1096
	54	4 80069 293224	20360 899632	11 670909	1094
	53	4 59708 393592	20372 570541	11 672003	1095
	52	4 39335 823051	20384 242544	11 673098	1098
	51	4 18951 580507	20395 915642	11 674196	1097
81	50	3 98555 664865	20407 589838	11 675293	1097
	49	3 78148 075027	20419 265131	11 676390	1099
	48	3 57728 809896	20430 941521	11 677489	1099
	47	3 37297 868375	20442 619010	11 678588	1102
	46	3 16855 249365	20454 297598	11 679690	1098
81	45	2 96400 951767	20465 977288	11 680788	1104
	44	2 75934 974479	20477 658076	11 681892	1101
	43	2 55457 316403	20489 339968	11 682993	1104
	42	2 34967 976435	20501 022961	11 684097	1103
	41	2 14466 953474	20512 707058	11 685200	1105
81	40	1 93954 246416	20524 392258	11 686305	1105
	39	1 73429 854158	20536 078563	11 687410	1105
	38	1 52893 775595	20547 765973	11 688515	1109
	37	1 32346 009622	20559 454488	11 689624	1106
	36	1 11786 555134	20571 144112	11 690730	1108
81	35	0 91215 411022	20582 834842	11 691838	1109
	34	0 70632 576180	20594 526680	11 692947	1110
	33	0 50038 049500	20606 219627	11 694057	1111
	32	0 29431 829873	20617 913684	11 695168	1110
	31	0 08813 916189	20629 608852	11 696278	1112
81	30	9 88184 307337	20641 305130	11 697390	1113
	29	9 67543 002207	20653 002520	11 698503	1114
	28	9 46889 999687	20664 701023	11 699617	1113
	27	9 26225 298664	20676 400640	11 700730	1114
	26	9 05548 898024	20688 101370	11 701844	1118
81	25	8 84860 796654	20699 803214	11 702962	1115
	24	8 64160 993440	20711 506176	11 704077	1116
	23	8 43449 487264	20723 210253	11 705193	1119
	22	8 22726 277011	20734 915446	11 706312	1119
	21	8 01991 361565	20746 621758	11 707431	1118
81	20	7 81244 739807	20758 329189	11 708549	1120
		9.980			

## Log Sines

c		log. sin.	$\Delta^1$	$\Delta^2$	$\Delta^3$
		9.980			
81	20	7 81244 739807	20758 329189	11 708549	1120
	19	7 60486 410618	20770 037738	11 709669	1122
	18	7 39716 372880	20781 747407	11 710791	1120
	17	7 18934 625473	20793 458198	11 711911	1123
	16	6 98141 167275	20805 170109	11 713034	1122
81	15	6 77335 997166	20816 883143	11 714156	1125
	14	6 56519 114023	20828 597299	11 715281	1124
	13	6 35690 516724	20840 312580	11 716405	1125
	12	6 14850 204144	20852 028985	11 717530	1125
	11	5 93998 175159	20863 746515	11 718655	1128
81	10	5 73134 428644	20875 465170	11 719783	1127
	09	5 52258 963474	20887 184953	11 720910	1128
	08	5 31371 778521	20898 905863	11 722038	1128
	07	5 10472 872658	20910 627901	11 723166	1131
	06	4 89562 244757	20922 351067	11 724297	1129
81	05	4 68639 893690	20934 075364	11 725426	1133
	04	4 47705 818326	20945 800790	11 726559	1129
	03	4 26760 017536	20957 527349	11 727688	1135
	02	4 05802 490187	20969 255037	11 728823	1133
	01	3 84833 235150	20980 983860	11 729956	1133
81	00	3 63852 251290	20992 713816	11 731089	1135
80	99	3 42859 537474	21004 444905	11 732224	1136
	98	3 21855 092569	21016 177129	11 733360	1137
	97	3 00838 915440	21027 910489	11 734497	1135
	96	2 79811 004951	21039 644986	11 735632	1139
80	95	2 58771 359965	21051 380618	11 736771	1139
	94	2 37719 979347	21063 117389	11 737910	1138
	93	2 16656 861958	21074 855299	11 739048	1141
	92	1 95582 006659	21086 594347	11 740189	1141
	91	1 74495 412312	21098 334536	11 741330	1140
80	90	1 53397 077776	21110 075866	11 742470	1144
	89	1 32287 001910	21121 818336	11 743614	1142
	88	1 11165 183574	21133 561950	11 744756	1143
	87	0 90031 621624	21145 306706	11 745899	1146
	86	0 68886 314918	21157 052605	11 747045	1145
80	85	0 47729 262313	21168 799650	11 748190	1145
	84	0 26560 462663	21180 547840	11 749335	1148
	83	0 05379 914823	21192 297175	11 750483	1146
	82	9 84187 617648	21204 047658	11 751629	1149
	81	9 62983 569990	21215 799287	11 752778	1150
80	80	9 41767 770703	21227 552065	11 753928	1147
		9.979			

## Log Sines

c		log. sin.	$\Delta^1$	$\Delta^2$	$\Delta^3$
		9.979			
80	80	9 41767 770703	21227 552065	11 753928	1147
	79	9 20540 218638	21239 305993	11 755075	1153
	78	8 99300 912645	21251 061068	11 756228	1151
	77	8 78049 851577	21262 817296	11 757379	1150
	76	8 56787 034281	21274 574675	11 758529	1155
80	75	8 35512 459606	21286 333204	11 759684	1152
	74	8 14226 126402	21298 092888	11 760836	1155
	73	7 92928 033514	21309 853724	11 761991	1154
	72	7 71618 179790	21321 615715	11 763145	1157
	71	7 50296 564075	21333 378860	11 764302	1156
80	70	7 28963 185215	21345 143162	11 765458	1157
	69	7 07618 042053	21356 908620	11 766615	1157
	68	6 86261 133433	21368 675235	11 767772	1161
	67	6 64892 458198	21380 443007	11 768933	1157
	66	6 43512 015191	21392 211940	11 770090	1162
80	65	6 22119 803251	21403 982030	11 771252	1161
	64	6 00715 821221	21415 753282	11 772413	1161
	63	5 79300 067939	21427 525695	11 773574	1162
	62	5 57872 542244	21439 299269	11 774736	1164
	61	5 36433 242975	21451 074005	11 775900	1164
80	60	5 14982 168970	21462 849905	11 777064	1164
	59	4 93519 319065	21474 626969	11 778228	1167
	58	4 72044 692096	21486 405197	11 779395	1165
	57	4 50558 286899	21498 184592	11 780560	1167
	56	4 29060 102307	21509 965152	11 781727	1168
80	55	4 07550 137155	21521 746879	11 782895	1169
	54	3 86028 390276	21533 529774	11 784064	1169
	53	3 64494 860502	21545 313838	11 785233	1170
	52	3 42949 546664	21557 099071	11 786403	1170
	51	3 21392 447593	21568 885474	11 787573	1173
80	50	2 99823 562119	21580 673047	11 788746	1171
	49	2 78242 889072	21592 461793	11 789917	1173
	48	2 56650 427279	21604 251710	11 791090	1175
	47	2 35046 175569	21616 042800	11 792265	1174
	46	2 13430 132769	21627 835065	11 793439	1176
80	45	1 91802 297704	21639 628504	11 794615	1174
	44	1 70162 669200	21651 423119	11 795789	1179
	43	1 48511 246081	21663 218908	11 796968	1177
	42	1 26848 027173	21675 015876	11 798145	1177
	41	1 05173 011297	21686 814021	11 799322	1181
80	40	0 83486 197276	21698 613343	11 800503	1180
		9.979			



## Log Sines

c	log. sin.	$\Delta^1$	$\Delta^2$	$\Delta^3$
	9.979			
80 40	0 83486 197276	21698 613343	11 800503	1180
39	0 61787 583933	21710 413846	11 801683	1179
38	0 40077 170087	21722 215529	11 802862	1182
37	0 18354 954558	21734 018391	11 804044	1182
36	9 96620 936167	21745 822435	11 805226	1184
80 35	9 74875 113732	21757 627661	11 806410	1182
34	9 53117 486071	21769 434071	11 807592	1186
33	9 31348 052000	21781 241663	11 808778	1185
32	9 09566 810337	21793 050441	11 809963	1185
31	8 87773 759896	21804 860404	11 811148	1187
80 30	8 65968 899492	21816 671552	11 812335	1188
29	8 44152 227940	21828 483887	11 813523	1188
28	8 22323 744053	21840 297410	11 814711	1188
27	8 00483 446643	21852 112121	11 815899	1192
26	7 78631 334522	21863 928020	11 817091	1189
80 25	7 56767 406502	21875 745111	11 818280	1191
24	7 34891 661391	21887 563391	11 819471	1193
23	7 13004 098000	21899 382862	11 820664	1192
22	6 91104 715138	21911 203526	11 821856	1194
21	6 69193 511612	21923 025382	11 823050	1195
80 20	6 47270 486230	21934 848432	11 824245	1194
19	6 25335 637798	21946 672677	11 825439	1197
18	6 03388 965121	21958 498116	11 826636	1195
17	5 81430 467005	21970 324752	11 827831	1199
16	5 59460 142253	21982 152583	11 829030	1198
80 15	5 37477 989670	21993 981613	11 830228	1198
14	5 15484 008057	22005 811841	11 831426	1200
13	4 93478 196216	22017 643267	11 832626	1201
12	4 71460 552949	22029 475893	11 833827	1201
11	4 49431 077056	22041 309720	11 835028	1202
80 10	4 27389 767336	22053 144748	11 836230	1203
09	4 05336 622588	22064 980978	11 837433	1203
08	3 83271 641610	22076 818411	11 838636	1205
07	3 61194 823199	22088 657047	11 839841	1204
06	3 39106 166152	22100 496888	11 841045	1207
80 05	3 17005 669264	22112 337933	11 842252	1206
04	2 94893 331331	22124 180185	11 843458	1207
03	2 72769 151146	22136 023643	11 844665	1209
02	2 50633 127503	22147 868308	11 845874	1209
01	2 28485 259195	22159 714182	11 847083	1209
80 00	2 06325 545013	22171 561265	11 848292	1211
	9.978			

## Log Sines

c	log. sin.	$\Delta^1$	$\Delta^2$	$\Delta^3$
	9.978			
80 00	2 06325 545013	22171 561265	11 848292	1211
79 99	1 84153 983748	22183 409557	11 849503	1210
98	1 61970 574191	22195 259060	11 850713	1214
97	1 39775 315131	22207 109773	11 851927	1212
96	1 17568 205358	22218 961700	11 853139	1213
79 95	0 95349 243658	22230 814839	11 854352	1214
94	0 73118 428819	22242 669191	11 855566	1217
93	0 50875 759628	22254 524757	11 856783	1213
92	0 28621 234871	22266 381540	11 857996	1220
91	0 06354 853331	22278 239536	11 859216	1214
79 90	9 84076 613795	22290 098752	11 860430	1221
89	9 61786 515043	22301 959182	11 861651	1217
88	9 39484 555861	22313 820833	11 862868	1221
87	9 17170 735028	22325 683701	11 864089	1220
86	8 94845 051327	22337 547790	11 865309	1221
79 85	8 72507 503537	22349 413099	11 866530	1222
84	8 50158 090438	22361 279629	11 867752	1224
83	8 27796 810809	22373 147381	11 868976	1222
82	8 05423 663428	22385 016357	11 870198	1226
81	7 83038 647071	22396 886555	11 871424	1224
79 80	7 60641 760516	22408 757979	11 872648	1225
79	7 38233 002537	22420 630627	11 873873	1229
78	7 15812 371910	22432 504500	11 875102	1226
77	6 93379 867410	22444 379602	11 876328	1229
76	6 70935 487808	22456 255930	11 877557	1229
79 75	6 48479 231878	22468 133487	11 878786	1228
74	6 26011 098391	22480 012273	11 880014	1233
73	6 03531 086118	22491 892287	11 881247	1231
72	5 81039 193831	22503 773534	11 882478	1230
71	5 58535 420297	22515 656012	11 883708	1236
79 70	5 36019 764285	22527 539720	11 884944	1231
69	5 13492 224565	22539 424664	11 886175	1236
68	4 90952 799901	22551 310839	11 887411	1235
67	4 68401 489062	22563 198250	11 888646	1236
66	4 45838 290812	22575 086896	11 889882	1237
79 65	4 23263 203916	22586 976778	11 891119	1237
64	4 00676 227138	22598 867897	11 892356	1238
63	3 78077 359241	22610 760253	11 893594	1241
62	3 55466 598988	22622 653847	11 894835	1238
61	3 32843 945141	22634 548682	11 896073	1242
79 60	3 10209 396459	22646 444755	11 897315	1240
	9.977			

## Log Sines

c	log. sin.	$\Delta^1$	$\Delta^2$	$\Delta^3$
	9.977			
79 60	3 10209 396459	22646 444755	11 897315	1240
59	2 87562 951704	22658 342070	11 898555	1244
58	2 64904 609634	22670 240625	11 899799	1242
57	2 42234 369009	22682 140424	11 901041	1245
56	2 19552 228585	22694 041465	11 902286	1243
79 55	1 96858 187120	22705 943751	11 903529	1247
54	1 74152 243369	22717 847280	11 904776	1244
53	1 51434 396089	22729 752056	11 906020	1250
52	1 28704 644033	22741 658076	11 907270	1245
51	1 05962 985957	22753 565346	11 908515	1250
79 50	0 83209 420611	22765 473861	11 909765	1249
49	0 60443 946750	22777 383626	11 911014	1250
48	0 37666 563124	22789 294640	11 912264	1251
47	0 14877 268484	22801 206904	11 913515	1252
46	9 92076 061580	22813 120419	11 914767	1252
79 45	9 69262 941161	22825 035186	11 916019	1253
44	9 46437 905975	22836 951205	11 917272	1255
43	9 23600 954770	22848 868477	11 918527	1254
42	9 00752 086293	22860 787004	11 919781	1255
41	8 77891 299289	22872 706785	11 921036	1258
79 40	8 55018 592504	22884 627821	11 922294	1257
39	8 32133 964683	22896 550115	11 923551	1257
38	8 09237 414568	22908 473666	11 924808	1259
37	7 86328 940902	22920 398474	11 926067	1259
36	7 63408 542428	22932 324541	11 927326	1262
79 35	7 40476 217887	22944 251867	11 928588	1260
34	7 17531 966020	22956 180455	11 929848	1262
33	6 94575 785565	22968 110303	11 931110	1263
32	6 71607 675262	22980 041413	11 932373	1263
31	6 48627 633849	22991 973786	11 933636	1264
79 30	6 25635 660063	23003 907422	11 934900	1267
29	6 02631 752641	23015 842322	11 936167	1263
28	5 79615 910319	23027 778489	11 937430	1269
27	5 56588 131830	23039 715919	11 938699	1266
26	5 33548 415911	23051 654618	11 939965	1269
79 25	5 10496 761293	23063 594583	11 941234	1269
24	4 87433 166710	23075 535817	11 942503	1270
23	4 64357 630893	23087 478320	11 943773	1270
22	4 41270 152573	23099 422093	11 945043	1271
21	4 18170 730480	23111 367136	11 946314	1274
79 20	3 95059 363344	23123 313450	11 947588	1271
	9.976			

## Log Sines

c		log. sin.	$\Delta^1$	$\Delta^2$	$\Delta^3$
		9.976			
79	20	3 95059 363344	23123 313450	11 947588	1271
	19	3 71936 049894	23135 261038	11 948859	1274
	18	3 48800 788856	23147 209897	11 950133	1276
	17	3 25653 578959	23159 160030	11 951409	1275
	16	3 02494 418929	23171 111439	11 952684	1275
79	15	2 79323 307490	23183 064123	11 953959	1278
	14	2 56140 243367	23195 018082	11 955237	1277
	13	2 32945 225285	23206 973319	11 956514	1279
	12	2 09738 251966	23218 929833	11 957793	1279
	11	1 86519 322133	23230 887626	11 959072	1281
79	10	1 63288 434507	23242 846698	11 960353	1280
	09	1 40045 587809	23254 807051	11 961633	1283
	08	1 16790 780758	23266 768684	11 962916	1281
	07	0 93524 012074	23278 731600	11 964197	1283
	06	0 70245 280474	23290 695797	11 965480	1286
79	05	0 46954 584677	23302 661277	11 966766	1284
	04	0 23651 923400	23314 628043	11 968050	1285
	03	0 00337 295357	23326 596093	11 969335	1288
	02	9 77010 699264	23338 565428	11 970623	1286
	01	9 53672 133836	23350 536051	11 971909	1289
79	00	9 30321 597785	23362 507960	11 973198	1288
78	99	9 06959 089825	23374 481158	11 974486	1290
	98	8 83584 608667	23386 455644	11 975776	1291
	97	8 60198 153023	23398 431420	11 977067	1292
	96	8 36799 721603	23410 408487	11 978359	1290
78	95	8 13389 313116	23422 386846	11 979649	1294
	94	7 89966 926270	23434 366495	11 980943	1294
	93	7 66532 559775	23446 347438	11 982237	1294
	92	7 43086 212337	23458 329675	11 983531	1296
	91	7 19627 882662	23470 313206	11 984827	1295
78	90	6 96157 569456	23482 298033	11 986122	1298
	89	6 72675 271423	23494 284155	11 987420	1297
	88	6 49180 987268	23506 271575	11 988717	1299
	87	6 25674 715693	23518 260292	11 990016	1299
	86	6 02156 455401	23530 250308	11 991315	1301
78	85	5 78626 205093	23542 241623	11 992616	1299
	84	5 55083 963470	23554 234239	11 993915	1304
	83	5 31529 729231	23566 228154	11 995219	1300
	82	5 07963 501077	23578 223373	11 996519	1306
	81	4 84385 277704	23590 219892	11 997825	1302
78	80	4 60795 057812	23602 217717	11 999127	1306
		9.975			

## Log Sines

c	log. sin.	$\Delta^1$	$\Delta^2$	$\Delta^3$
	9.975			
78 80	4 60795 057812	23602 217717	11 999127	1306
79	4 37192 840095	23614 216844	12 000433	1306
78	4 13578 623251	23626 217277	12 001739	1306
77	3 89952 405974	23638 219016	12 003045	1308
76	3 66314 186958	23650 222061	12 004353	1307
78 75	3 42663 964897	23662 226414	12 005660	1309
74	3 19001 738483	23674 232074	12 006969	1312
73	2 95327 506409	23686 239043	12 008281	1308
72	2 71641 267366	23698 247324	12 009589	1312
71	2 47943 020042	23710 256913	12 010901	1314
78 70	2 24232 763129	23722 267814	12 012215	1311
69	2 00510 495315	23734 280029	12 013526	1314
68	1 76776 215286	23746 293555	12 014840	1315
67	1 53029 921731	23758 308395	12 016155	1316
66	1 29271 613336	23770 324550	12 017471	1316
78 65	1 05501 288786	23782 342021	12 018787	1316
64	0 81718 946765	23794 360808	12 020103	1320
63	0 57924 585957	23806 380911	12 021423	1316
62	0 34118 205046	23818 402334	12 022739	1321
61	0 10299 802712	23830 425073	12 024060	1321
78 60	9 86469 377639	23842 449133	12 025381	1320
59	9 62626 928506	23854 474514	12 026701	1322
58	9 38772 453992	23866 501215	12 028023	1322
57	9 14905 952777	23878 529238	12 029345	1326
56	8 91027 423539	23890 558583	12 030671	1322
78 55	8 67136 864956	23902 589254	12 031993	1326
54	8 43234 275702	23914 621247	12 033319	1326
53	8 19319 654455	23926 654566	12 034645	1326
52	7 95392 999889	23938 689211	12 035971	1330
51	7 71454 310678	23950 725182	12 037301	1325
78 50	7 47503 585496	23962 762483	12 038626	1332
49	7 23540 823013	23974 801109	12 039958	1329
48	6 99566 021904	23986 841067	12 041287	1331
47	6 75579 180837	23998 882354	12 042618	1331
46	6 51580 298483	24010 924972	12 043949	1333
78 45	6 27569 373511	24022 968921	12 045282	1334
44	6 03546 404590	24035 014203	12 046616	1334
43	5 79511 390387	24047 060819	12 047950	1333
42	5 55464 329568	24059 108769	12 049283	1338
41	5 31405 220799	24071 158052	12 050621	1336
78 40	5 07334 062747	24083 208673	12 051957	1337
	9.974			

## Log Sines

c	log. sin.	$\Delta^1$	$\Delta^2$	$\Delta^3$
	9.974			
78 40	5 07334 062747	24083 208673	12 051957	1337
39	4 83250 854074	24095 260630	12 053294	1339
38	4 59155 593444	24107 313924	12 054633	1337
37	4 35048 279520	24119 368557	12 055970	1343
36	4 10928 910963	24131 424527	12 057313	1338
78 35	3 86797 486436	24143 481840	12 058651	1342
34	3 62654 004596	24155 540491	12 059993	1343
33	3 38498 464105	24167 600484	12 061336	1343
32	3 14330 863621	24179 661820	12 062679	1344
31	2 90151 201801	24191 724499	12 064023	1344
78 30	2 65959 477302	24203 788522	12 065367	1347
29	2 41755 688780	24215 853889	12 066714	1345
28	2 17539 834891	24227 920603	12 068059	1348
27	1 93311 914288	24239 988662	12 069407	1347
26	1 69071 925626	24252 058069	12 070754	1351
78 25	1 44819 867557	24264 128823	12 072105	1347
24	1 20555 738734	24276 200928	12 073452	1353
23	0 96279 537806	24288 274380	12 074805	1349
22	0 71991 263426	24300 349185	12 076154	1354
21	0 47690 914241	24312 425339	12 077508	1353
78 20	0 23378 488902	24324 502847	12 078861	1352
19	9 99053 986055	24336 581708	12 080213	1357
18	9 74717 404347	24348 661921	12 081570	1353
17	9 50368 742426	24360 743491	12 082923	1358
16	9 26007 998935	24372 826414	12 084281	1357
78 15	9 01635 172521	24384 910695	12 085638	1357
14	8 77250 261826	24396 996333	12 086995	1359
13	8 52853 265493	24409 083328	12 088354	1361
12	8 28444 182165	24421 171682	12 089715	1358
11	8 04023 010483	24433 261397	12 091073	1363
78 10	7 79589 749086	24445 352470	12 092436	1362
09	7 55144 396616	24457 444906	12 093798	1362
08	7 30686 951710	24469 538704	12 095160	1364
07	7 06217 413006	24481 633864	12 096524	1365
06	6 81735 779142	24493 730388	12 097889	1365
78 05	6 57242 048754	24505 828277	12 099254	1366
04	6 32736 220477	24517 927531	12 100620	1367
03	6 08218 292946	24530 028151	12 101987	1369
02	5 83688 264795	24542 130138	12 103356	1367
01	5 59146 134657	24554 233494	12 104723	1370
78 00	5 34591 901163	24566 338217	12 106093	1371
	9.973			

## Log Sines

c	log. sin.	$\Delta^1$	$\Delta^2$	$\Delta^3$
	9.973			
78 00	5 34591 901163	24566 338217	12 106093	1371
77 99	5 10025 562946	24578 444310	12 107464	1371
98	4 85447 118636	24590 551774	12 108835	1372
97	4 60856 566862	24602 660609	12 110207	1373
96	4 36253 906253	24614 770816	12 111580	1372
77 95	4 11639 135437	24626 882396	12 112952	1377
94	3 87012 253041	24638 995348	12 114329	1374
93	3 62373 257693	24651 109677	12 115703	1376
92	3 37722 148016	24663 225380	12 117079	1377
91	3 13058 922636	24675 342459	12 118456	1379
77 90	2 88383 580177	24687 460915	12 119835	1377
89	2 63696 119262	24699 580750	12 121212	1380
88	2 38996 538512	24711 701962	12 122592	1381
87	2 14284 836550	24723 824554	12 123973	1381
86	1 89561 011996	24735 948527	12 125354	1382
77 85	1 64825 063469	24748 073881	12 126736	1382
84	1 40076 989588	24760 200617	12 128118	1384
83	1 15316 788971	24772 328735	12 129502	1385
82	0 90544 460236	24784 458237	12 130887	1385
81	0 65760 001999	24796 589124	12 132272	1387
77 80	0 40963 412875	24808 721396	12 133659	1385
79	0 16154 691479	24820 855055	12 135044	1390
78	9 91333 836424	24832 990099	12 136434	1388
77	9 66500 846325	24845 126533	12 137822	1388
76	9 41655 719792	24857 264355	12 139210	1393
77 75	9 16798 455437	24869 403565	12 140603	1389
74	8 91929 051872	24881 544168	12 141992	1393
73	8 67047 507704	24893 686160	12 143385	1393
72	8 42153 821544	24905 829545	12 144778	1394
71	8 17247 991999	24917 974323	12 146172	1393
77 70	7 92330 017676	24930 120495	12 147565	1397
69	7 67399 897181	24942 268060	12 148962	1396
68	7 42457 629121	24954 417022	12 150358	1396
67	7 17503 212099	24966 567380	12 151754	1399
66	6 92536 644719	24978 719134	12 153153	1398
77 65	6 67557 925585	24990 872287	12 154551	1400
64	6 42567 053298	25003 026838	12 155951	1401
63	6 17564 026460	25015 182789	12 157352	1400
62	5 92548 843671	25027 340141	12 158752	1403
61	5 67521 503530	25039 498893	12 160155	1403
77 60	5 42482 004637	25051 659048	12 161558	1404
	9.972			

## Log Sines

c	log. sin.	$\Delta^1$	$\Delta^2$	$\Delta^3$
	9.972			
77 60	5 42482 004637	25051 659048	12 161558	1404
59	5 17430 345589	25063 820606	12 162962	1403
58	4 92366 524983	25075 983568	12 164365	1408
57	4 67290 541415	25088 147933	12 165773	1404
56	4 42202 393482	25100 313706	12 167177	1409
77 55	4 17102 079776	25112 480883	12 168586	1407
54	3 91989 598893	25124 649469	12 169993	1409
53	3 66864 949424	25136 819462	12 171402	1410
52	3 41728 129962	25148 990864	12 172812	1410
51	3 16579 139098	25161 163676	12 174222	1413
77 50	2 91417 975422	25173 337898	12 175635	1410
49	2 66244 637524	25185 513533	12 177045	1414
48	2 41059 123991	25197 690578	12 178459	1415
47	2 15861 433413	25209 869037	12 179874	1414
46	1 90651 564376	25222 048911	12 181288	1415
77 45	1 65429 515465	25234 230199	12 182703	1417
44	1 40195 285266	25246 412902	12 184120	1418
43	1 14948 872364	25258 597022	12 185538	1417
42	0 89690 275342	25270 782560	12 186955	1420
41	0 64419 492782	25282 969515	12 188375	1419
77 40	0 39136 523267	25295 157890	12 189794	1422
39	0 13841 365377	25307 347684	12 191216	1420
38	9 88534 017693	25319 538900	12 192636	1424
37	9 63214 478793	25331 731536	12 194060	1422
36	9 37882 747257	25343 925596	12 195482	1425
77 35	9 12538 821661	25356 121078	12 196907	1425
34	8 87182 700583	25368 317985	12 198332	1426
33	8 61814 382598	25380 516317	12 199758	1425
32	8 36433 866281	25392 716075	12 201183	1430
31	8 11041 150206	25404 917258	12 202613	1426
77 30	7 85636 232948	25417 119871	12 204039	1431
29	7 60219 113077	25429 323910	12 205470	1430
28	7 34789 789167	25441 529380	12 206900	1430
27	7 09348 259787	25453 736280	12 208330	1433
26	6 83894 523507	25465 944610	12 209763	1431
77 25	6 58428 578897	25478 154373	12 211194	1435
24	6 32950 424524	25490 365567	12 212629	1434
23	6 07460 058957	25502 578196	12 214063	1435
22	5 81957 480761	25514 792259	12 215498	1437
21	5 56442 688502	25527 007757	12 216935	1435
77 20	5 30915 680745	25539 224692	12 218370	1440
	9.971			



## Log Sines

c		log. sin.	$\Delta^1$	$\Delta^2$	$\Delta^3$
		9.971			
77	20	5 30915 680745	25539 224692	12 218370	1440
	19	5 05376 456053	25551 443062	12 219810	1437
	18	4 79825 012991	25563 662872	12 221247	1441
	17	4 54261 350119	25575 884119	12 222688	1439
	16	4 28685 466000	25588 106807	12 224127	1442
77	15	4 03097 359193	25600 330934	12 225569	1441
	14	3 77497 028259	25612 556503	12 227010	1445
	13	3 51884 471756	25624 783513	12 228455	1442
	12	3 26259 688243	25637 011968	12 229897	1445
	11	3 00622 676275	25649 241865	12 231342	1447
77	10	2 74973 434410	25661 473207	12 232789	1444
	09	2 49311 961203	25673 705996	12 234233	1450
	08	2 23638 255207	25685 940229	12 235683	1445
	07	1 97952 314978	25698 175912	12 237128	1452
	06	1 72254 139066	25710 413040	12 238580	1447
77	05	1 46543 726026	25722 651620	12 240027	1453
	04	1 20821 074406	25734 891647	12 241480	1450
	03	0 95086 182759	25747 133127	12 242930	1454
	02	0 69339 049632	25759 376057	12 244384	1452
	01	0 43579 673575	25771 620441	12 245836	1454
77	00	0 17808 053134	25783 866277	12 247290	1456
76	99	9 92024 186857	25796 113567	12 248746	1455
	98	9 66228 073290	25808 362313	12 250201	1458
	97	9 40419 710977	25820 612514	12 251659	1456
	96	9 14599 098463	25832 864173	12 253115	1459
76	95	8 88766 234290	25845 117288	12 254574	1460
	94	8 62921 117002	25857 371862	12 256034	1460
	93	8 37063 745140	25869 627896	12 257494	1460
	92	8 11194 117244	25881 885390	12 258954	1463
	91	7 85312 231854	25894 144344	12 260417	1463
76	90	7 59418 087510	25906 404761	12 261880	1463
	89	7 33511 682749	25918 666641	12 263343	1464
	88	7 07593 016108	25930 929984	12 264807	1467
	87	6 81662 086124	25943 194791	12 266274	1465
	86	6 55718 891333	25955 461065	12 267739	1468
76	85	6 29763 430268	25967 728804	12 269207	1467
	84	6 03795 701464	25979 998011	12 270674	1469
	83	5 77815 703453	25992 268685	12 272143	1471
	82	5 51823 434768	26004 540828	12 273614	1469
	81	5 25818 893940	26016 814442	12 275083	1473
76	80	4 99802 079498	26029 089525	12 276556	1471
		9.970			

## Log Sines

c	log. sin.	$\Delta^1$	$\Delta^2$	$\Delta^3$
	9.970			
76 80	4 99802 079498	26029 089525	12 276556	1471
79	4 73772 989973	26041 366081	12 278027	1474
78	4 47731 623892	26053 644108	12 279501	1474
77	4 21677 979784	26065 923609	12 280975	1474
76	3 95612 056175	26078 204584	12 282449	1478
76 75	3 69533 851591	26090 487033	12 283927	1475
74	3 43443 364558	26102 770960	12 285402	1478
73	3 17340 593598	26115 056362	12 286880	1478
72	2 91225 537236	26127 343242	12 288358	1480
71	2 65098 193994	26139 631600	12 289838	1480
76 70	2 38958 562394	26151 921438	12 291318	1481
69	2 12806 640956	26164 212756	12 292799	1482
68	1 86642 428200	26176 505555	12 294281	1483
67	1 60465 922645	26188 799836	12 295764	1484
66	1 34277 122809	26201 095600	12 297248	1484
76 65	1 08076 027209	26213 392848	12 298732	1485
64	0 81862 634361	26225 691580	12 300217	1487
63	0 55636 942781	26237 991797	12 301704	1488
62	0 29398 950984	26250 293501	12 303192	1486
61	0 03148 657483	26262 596693	12 304678	1491
76 60	9 76886 060790	26274 901371	12 306169	1489
59	9 50611 159419	26287 207540	12 307658	1490
58	9 24323 951879	26299 515198	12 309148	1493
57	8 98024 436681	26311 824346	12 310641	1492
56	8 71712 612335	26324 134987	12 312133	1492
76 55	8 45388 477348	26336 447120	12 313625	1497
54	8 19052 030228	26348 760745	12 315122	1492
53	7 92703 269483	26361 075867	12 316614	1498
52	7 66342 193616	26373 392481	12 318112	1497
51	7 39968 801135	26385 710593	12 319609	1496
76 50	7 13583 090542	26398 030202	12 321105	1501
49	6 87185 060340	26410 351307	12 322606	1497
48	6 60774 709033	26422 673913	12 324103	1502
47	6 34352 035120	26434 998016	12 325605	1502
46	6 07917 037104	26447 323621	12 327107	1500
76 45	5 81469 713483	26459 650728	12 328607	1504
44	5 55010 062755	26471 979335	12 330111	1505
43	5 28538 083420	26484 309446	12 331616	1503
42	5 02053 773974	26496 641062	12 333119	1507
41	4 75557 132912	26508 974181	12 334626	1507
76 40	4 49048 158731	26521 308807	12 336133	1506
	9.969			

## Log Sines

c		log. sin.	$\Delta^1$	$\Delta^2$	$\Delta^3$
		9.969			
76	40	4 49048 158731	26521 308807	12 336133	1506
	39	4 22526 849924	26533 644940	12 337639	1508
	38	3 95993 204984	26545 982579	12 339147	1512
	37	3 69447 222405	26558 321726	12 340659	1507
	36	3 42888 900679	26570 662385	12 342166	1513
76	35	3 16318 238294	26583 004551	12 343679	1511
	34	2 89735 233743	26595 348230	12 345190	1513
	33	2 63139 885513	26607 693420	12 346703	1514
	32	2 36532 192093	26620 040123	12 348217	1514
	31	2 09912 151970	26632 388340	12 349731	1516
76	30	1 83279 763630	26644 738071	12 351247	1517
	29	1 56635 025559	26657 089318	12 352764	1515
	28	1 29977 936241	26669 442082	12 354279	1520
	27	1 03308 494159	26681 796361	12 355799	1518
	26	0 76626 697798	26694 152160	12 357317	1521
76	25	0 49932 545638	26706 509477	12 358838	1519
	24	0 23226 036161	26718 868315	12 360357	1524
	23	9 96507 167846	26731 228672	12 361881	1521
	22	9 69775 939174	26743 590553	12 363402	1523
	21	9 43032 348621	26755 953955	12 364925	1526
76	20	9 16276 394666	26768 318880	12 366451	1524
	19	8 89508 075786	26780 685331	12 367975	1527
	18	8 62727 390455	26793 053306	12 369502	1527
	17	8 35934 337149	26805 422808	12 371029	1526
	16	8 09128 914341	26817 793837	12 372555	1532
76	15	7 82311 120504	26830 166392	12 374087	1527
	14	7 55480 954112	26842 540479	12 375614	1532
	13	7 28638 413633	26854 916093	12 377146	1531
	12	7 01783 497540	26867 293239	12 378677	1532
	11	6 74916 204301	26879 671916	12 380209	1534
76	10	6 48036 532385	26892 052125	12 381743	1535
	09	6 21144 480260	26904 433868	12 383278	1533
	08	5 94240 046392	26916 817146	12 384811	1538
	07	5 67323 229246	26929 201957	12 386349	1535
	06	5 40394 027289	26941 588306	12 387884	1539
76	05	5 13452 438983	26953 976190	12 389423	1539
	04	4 86498 462793	26966 365613	12 390962	1538
	03	4 59532 097180	26978 756575	12 392500	1542
	02	4 32553 340605	26991 149075	12 394042	1541
	01	4 05562 191530	27003 543117	12 395583	1542
76	00	3 78558 648413	27015 938700	12 397125	1543
		9.968			

## Log Sines

c	log. sin.	$\Delta^1$	$\Delta^2$	$\Delta^3$
	9.968			
76 00	3 78558 648413	27015 938700	12 397125	1543
75 99	3 51542 709713	27028 335825	12 398668	1544
98	3 24514 373888	27040 734493	12 400212	1546
97	2 97473 639395	27053 134705	12 401758	1545
96	2 70420 504690	27065 536463	12 403303	1546
75 95	2 43354 968227	27077 939766	12 404849	1549
94	2 16277 028461	27090 344615	12 406398	1549
93	1 89186 683846	27102 751013	12 407947	1548
92	1 62083 932833	27115 158960	12 409495	1551
91	1 34968 773873	27127 568455	12 411046	1551
75 90	1 07841 205418	27139 979501	12 412597	1553
89	0 80701 225917	27152 392098	12 414150	1552
88	0 53548 833819	27164 806248	12 415702	1555
87	0 26384 027571	27177 221950	12 417257	1555
86	9 99206 805621	27189 639207	12 418812	1554
75 85	9 72017 166414	27202 058019	12 420366	1559
84	9 44815 108395	27214 478385	12 421925	1556
83	9 17600 630010	27226 900310	12 423481	1559
82	8 90373 729700	27239 323791	12 425040	1560
81	8 63134 405909	27251 748831	12 426600	1560
75 80	8 35882 657078	27264 175431	12 428160	1561
79	8 08618 481647	27276 603591	12 429721	1562
78	7 81341 878056	27289 033312	12 431283	1563
77	7 54052 844744	27301 464595	12 432846	1565
76	7 26751 380149	27313 897441	12 434411	1564
75 75	6 99437 482708	27326 331852	12 435975	1565
74	6 72111 150856	27338 767827	12 437540	1569
73	6 44772 383029	27351 205367	12 439109	1565
72	6 17421 177662	27363 644476	12 440674	1571
71	5 90057 533186	27376 085150	12 442245	1567
75 70	5 62681 448036	27388 527395	12 443812	1572
69	5 35292 920641	27400 971207	12 445384	1571
68	5 07891 949434	27413 416591	12 446955	1572
67	4 80478 532843	27425 863546	12 448527	1572
66	4 53052 669297	27438 312073	12 450099	1576
75 65	4 25614 357224	27450 762172	12 451675	1574
64	3 98163 595052	27463 213847	12 453249	1575
63	3 70700 381205	27475 667096	12 454824	1578
62	3 43224 714109	27488 121920	12 456402	1576
61	3 15736 592189	27500 578322	12 457978	1580
75 60	2 88236 013867	27513 036300	12 459558	1580
	9.967			

## Log Sines

c	log. sin.	$\Delta^1$	$\Delta^2$	$\Delta^3$
	9.967			
75 60	2 88236 013867	27513 036300	12 459558	1580
59	2 60722 977567	27525 495858	12 461138	1579
58	2 33197 481709	27537 956996	12 462717	1581
57	2 05659 524713	27550 419713	12 464298	1584
56	1 78109 105000	27562 884011	12 465882	1581
75 55	1 50546 220989	27575 349893	12 467463	1586
54	1 22970 871096	27587 817356	12 469049	1584
53	0 95383 053740	27600 286405	12 470633	1586
52	0 67782 767335	27612 757038	12 472219	1586
51	0 40170 010297	27625 229257	12 473805	1590
75 50	0 12544 781040	27637 703062	12 475395	1586
49	9 84907 077978	27650 178457	12 476981	1591
48	9 57256 899521	27662 655438	12 478572	1590
47	9 29594 244083	27675 134010	12 480162	1592
46	9 01919 110073	27687 614172	12 481754	1592
75 45	8 74231 495901	27700 095926	12 483346	1593
44	8 46531 399975	27712 579272	12 484939	1594
43	8 18818 820703	27725 064211	12 486533	1596
42	7 91093 756492	27737 550744	12 488129	1595
41	7 63356 205748	27750 038873	12 489724	1597
75 40	7 35606 166875	27762 528597	12 491321	1599
39	7 07843 638278	27775 019918	12 492920	1598
38	6 80068 618360	27787 512838	12 494518	1599
37	6 52281 105522	27800 007356	12 496117	1601
36	6 24481 098166	27812 503473	12 497718	1603
75 35	5 96668 594693	27825 001191	12 499321	1600
34	5 68843 593502	27837 500512	12 500921	1606
33	5 41006 092990	27850 001433	12 502527	1602
32	5 13156 091557	27862 503960	12 504129	1607
31	4 85293 587597	27875 008089	12 505736	1605
75 30	4 57418 579508	27887 513825	12 507341	1608
29	4 29531 065683	27900 021166	12 508949	1607
28	4 01631 044517	27912 530115	12 510556	1610
27	3 73718 514402	27925 040671	12 512166	1609
26	3 45793 473731	27937 552837	12 513775	1611
75 25	3 17855 920894	27950 066612	12 515386	1612
24	2 89905 854282	27962 581998	12 516998	1613
23	2 61943 272284	27975 098996	12 518611	1614
22	2 33968 173288	27987 617607	12 520225	1613
21	2 05980 555681	28000 137832	12 521838	1616
75 20	1 77980 417849	28012 659670	12 523454	1616
	9.966			

## Log Sines

c		log. sin.	$\Delta^1$	$\Delta^2$	$\Delta^3$
		9.966			
75	20	1 77980 417849	28012 659670	12 523454	1616
	19	1 49967 758179	28025 183124	12 525070	1619
	18	1 21942 575055	28037 708194	12 526689	1617
	17	0 93904 866861	28050 234883	12 528306	1619
	16	0 65854 631978	28062 763189	12 529925	1621
75	15	0 37791 868789	28075 293114	12 531546	1620
	14	0 09716 575675	28087 824660	12 533166	1623
	13	9 81628 751015	28100 357826	12 534789	1623
	12	9 53528 393189	28112 892615	12 536412	1622
	11	9 25415 500574	28125 429027	12 538034	1627
75	10	8 97290 071547	28137 967061	12 539661	1624
	09	8 69152 104486	28150 506722	12 541285	1628
	08	8 41001 597764	28163 048007	12 542913	1627
	07	8 12838 549757	28175 590920	12 544540	1628
	06	7 84662 958837	28188 135460	12 546168	1631
75	05	7 56474 823377	28200 681628	12 547799	1629
	04	7 28274 141749	28213 229427	12 549428	1632
	03	7 00060 912322	28225 778855	12 551060	1631
	02	6 71835 133467	28238 329915	12 552691	1635
	01	6 43596 803552	28250 882606	12 554326	1634
75	00	6 15345 920946	28263 436932	12 555960	1634
74	99	5 87082 484014	28275 992892	12 557594	1636
	98	5 58806 491122	28288 550486	12 559230	1638
	97	5 30517 940636	28301 109716	12 560868	1638
	96	5 02216 830920	28313 670584	12 562506	1637
74	95	4 73903 160336	28326 233090	12 564143	1642
	94	4 45576 927246	28338 797233	12 565785	1639
	93	4 17238 130013	28351 363018	12 567424	1643
	92	3 88886 766995	28363 930442	12 569067	1642
	91	3 60522 836553	28376 499509	12 570709	1644
74	90	3 32146 337044	28389 070218	12 572353	1644
	89	3 03757 266826	28401 642571	12 573997	1645
	88	2 75355 624255	28414 216568	12 575642	1647
	87	2 46941 407687	28426 792210	12 577289	1648
	86	2 18514 615477	28439 369499	12 578937	1647
74	85	1 90075 245978	28451 948436	12 580584	1650
	84	1 61623 297542	28464 529020	12 582234	1650
	83	1 33158 768522	28477 111254	12 583884	1651
	82	1 04681 657268	28489 695138	12 585535	1652
	81	0 76191 962130	28502 280673	12 587187	1653
74	80	0 47689 681457	28514 867860	12 588840	1654
		9.965			

## Log Sines

c	log. sin.	$\Delta^1$	$\Delta^2$	$\Delta^3$
	9.965			
74 80	0 47689 681457	28514 867860	12 588840	1654
79	0 19174 813597	28527 456700	12 590494	1656
78	9 90647 356897	28540 047194	12 592150	1654
77	9 62107 309703	28552 639344	12 593804	1658
76	9 33554 670359	28565 233148	12 595462	1657
74 75	9 04989 437211	28577 828610	12 597119	1659
74	8 76411 608601	28590 425729	12 598778	1660
73	8 47821 182872	28603 024507	12 600438	1660
72	8 19218 158365	28615 624945	12 602098	1662
71	7 90602 533420	28628 227043	12 603760	1663
74 70	7 61974 306377	28640 830803	12 605423	1662
69	7 33333 475574	28653 436226	12 607085	1665
68	7 04680 039348	28666 043311	12 608750	1666
67	6 76013 996037	28678 652061	12 610416	1666
66	6 47335 343976	28691 262477	12 612082	1667
74 65	6 18644 081499	28703 874559	12 613749	1668
64	5 89940 206940	28716 488308	12 615417	1669
63	5 61223 718632	28729 103725	12 617086	1671
62	5 32494 614907	28741 720811	12 618757	1671
61	5 03752 894096	28754 339568	12 620428	1671
74 60	4 74998 554528	28766 959996	12 622099	1675
59	4 46231 594532	28779 582095	12 623774	1671
58	4 17452 012437	28792 205869	12 625445	1677
57	3 88659 806568	28804 831314	12 627122	1676
56	3 59854 975254	28817 458436	12 628798	1675
74 55	3 31037 516818	28830 087234	12 630473	1680
54	3 02207 429584	28842 717707	12 632153	1677
53	2 73364 711877	28855 349860	12 633830	1680
52	2 44509 362017	28867 983690	12 635510	1681
51	2 15641 378327	28880 619200	12 637191	1682
74 50	1 86760 759127	28893 256391	12 638873	1682
49	1 57867 502736	28905 895264	12 640555	1683
48	1 28961 607472	28918 535819	12 642238	1685
47	1 00043 071653	28931 178057	12 643923	1686
46	0 71111 893596	28943 821980	12 645609	1686
74 45	0 42168 071616	28956 467589	12 647295	1687
44	0 13211 604027	28969 114884	12 648982	1689
43	9 84242 489143	28981 763866	12 650671	1688
42	9 55260 725277	28994 414537	12 652359	1692
41	9 26266 310740	29007 066896	12 654051	1690
74 40	8 97259 243844	29019 720947	12 655741	1692
	9.963			

## Log Sines

c	log. sin.	$\Delta^1$	$\Delta^2$	$\Delta^3$
	9.963			
74 40	8 97259 243844	29019 720947	12 655741	1692
39	8 68239 522897	29032 376688	12 657433	1694
38	8 39207 146209	29045 034121	12 659127	1694
37	8 10162 112088	29057 693248	12 660821	1694
36	7 81104 418840	29070 354069	12 662515	1698
74 35	7 52034 064771	29083 016584	12 664213	1695
34	7 22951 048187	29095 680797	12 665908	1699
33	6 93855 367390	29108 346705	12 667607	1698
32	6 64747 020685	29121 014312	12 669305	1702
31	6 35626 006373	29133 683617	12 671007	1699
74 30	6 06492 322756	29146 354624	12 672706	1702
29	5 77345 968132	29159 027330	12 674408	1703
28	5 48186 940802	29171 701738	12 676111	1704
27	5 19015 239064	29184 377849	12 677815	1705
26	4 89830 861215	29197 055664	12 679520	1705
74 25	4 60633 805551	29209 735184	12 681225	1707
24	4 31424 070367	29222 416409	12 682932	1708
23	4 02201 653958	29235 099341	12 684640	1708
22	3 72966 554617	29247 783981	12 686348	1710
21	3 43718 770636	29260 470329	12 688058	1710
74 20	3 14458 300307	29273 158387	12 689768	1713
19	2 85185 141920	29285 848155	12 691481	1711
18	2 55899 293765	29298 539636	12 693192	1713
17	2 26600 754129	29311 232828	12 694905	1717
16	1 97289 521301	29323 927733	12 696622	1713
74 15	1 67965 593568	29336 624355	12 698335	1718
14	1 38628 969213	29349 322690	12 700053	1716
13	1 09279 646523	29362 022743	12 701769	1719
12	0 79917 623780	29374 724512	12 703488	1720
11	0 50542 899268	29387 428000	12 705208	1719
74 10	0 21155 471268	29400 133208	12 706927	1722
09	9 91755 338060	29412 840135	12 708649	1722
08	9 62342 497925	29425 548784	12 710371	1724
07	9 32916 949141	29438 259155	12 712095	1724
06	9 03478 689986	29450 971250	12 713819	1724
74 05	8 74027 718736	29463 685069	12 715543	1727
04	8 44564 033667	29476 400612	12 717270	1728
03	8 15087 633055	29489 117882	12 718998	1727
02	7 85598 515173	29501 836880	12 720725	1729
01	7 56096 678293	29514 557605	12 722454	1731
74 00	7 26582 120688	29527 280059	12 724185	1730
	9.962			



## Log Sines

c	log. sin.	$\Delta^1$	$\Delta^2$	$\Delta^3$
	9.962			
74 00	7 26582 120688	29527 280059	12 724185	1730
73 99	6 97054 840629	29540 004244	12 725915	1733
98	6 67514 836385	29552 730159	12 727648	1733
97	6 37962 106226	29565 457807	12 729381	1733
96	6 08396 648419	29578 187188	12 731114	1737
73 95	5 78818 461231	29590 918302	12 732851	1733
94	5 49227 542929	29603 651153	12 734584	1740
93	5 19623 891776	29616 385737	12 736324	1736
92	4 90007 506039	29629 122061	12 738060	1740
91	4 60378 383978	29641 860121	12 739800	1739
73 90	4 30736 523857	29654 599921	12 741539	1742
89	4 01081 923936	29667 341460	12 743281	1740
88	3 71414 582476	29680 084741	12 745021	1745
87	3 41734 497735	29692 829762	12 746766	1744
86	3 12041 667973	29705 576528	12 748510	1742
73 85	2 82336 091445	29718 325038	12 750252	1749
84	2 52617 766407	29731 075290	12 752001	1745
83	2 22886 691117	29743 827291	12 753746	1749
82	1 93142 863826	29756 581037	12 755495	1748
81	1 63386 282789	29769 336532	12 757243	1750
73 80	1 33616 946257	29782 093775	12 758993	1750
79	1 03834 852482	29794 852768	12 760743	1753
78	0 74039 999714	29807 613511	12 762496	1753
77	0 44232 386203	29820 376007	12 764249	1752
76	0 14412 010196	29833 140256	12 766001	1756
73 75	9 84578 869940	29845 906257	12 767757	1756
74	9 54732 963683	29858 674014	12 769513	1756
73	9 24874 289669	29871 443527	12 771269	1758
72	8 95002 846142	29884 214796	12 773027	1759
71	8 65118 631346	29896 987823	12 774786	1760
73 70	8 35221 643523	29909 762609	12 776546	1759
69	8 05311 880914	29922 539155	12 778305	1764
68	7 75389 341759	29935 317460	12 780069	1761
67	7 45454 024299	29948 097529	12 781830	1764
66	7 15505 926770	29960 879359	12 783594	1765
73 65	6 85545 047411	29973 662953	12 785359	1766
64	6 55571 384458	29986 448312	12 787125	1766
63	6 25584 936146	29999 235437	12 788891	1768
62	5 95585 700709	30012 024328	12 790659	1769
61	5 65573 676381	30024 814987	12 792428	1769
73 60	5 35548 861394	30037 607415	12 794197	1771
	9.961			

## Log Sines

c		log. sin.	$\Delta^1$	$\Delta^2$	$\Delta^3$
		9.961			
73	60	5 35548 861394	30037 607415	12 794197	1771
	59	5 05511 253979	30050 401612	12 795968	1772
	58	4 75460 852367	30063 197580	12 797740	1772
	57	4 45397 654787	30075 995320	12 799512	1775
	56	4 15321 659467	30088 794832	12 801287	1773
73	55	3 85232 864635	30101 596119	12 803060	1776
	54	3 55131 268516	30114 399179	12 804836	1778
	53	3 25016 869337	30127 204015	12 806614	1776
	52	2 94889 665322	30140 010629	12 808390	1780
	51	2 64749 654693	30152 819019	12 810170	1779
73	50	2 34596 835674	30165 629189	12 811949	1781
	49	2 04431 206485	30178 441138	12 813730	1781
	48	1 74252 765347	30191 254868	12 815511	1783
	47	1 44061 510479	30204 070379	12 817294	1785
	46	1 13857 440100	30216 887673	12 819079	1783
73	45	0 83640 552427	30229 706752	12 820862	1786
	44	0 53410 845675	30242 527614	12 822648	1787
	43	0 23168 318061	30255 350262	12 824435	1788
	42	9 92912 967799	30268 174697	12 826223	1789
	41	9 62644 793102	30281 000920	12 828012	1789
73	40	9 32363 792182	30293 828932	12 829801	1791
	39	9 02069 963250	30306 658733	12 831592	1792
	38	8 71763 304517	30319 490325	12 833384	1792
	37	8 41443 814192	30332 323709	12 835176	1794
	36	8 11111 490483	30345 158885	12 836970	1795
73	35	7 80766 331598	30357 995855	12 838765	1797
	34	7 50408 335743	30370 834620	12 840562	1795
	33	7 20037 501123	30383 675182	12 842357	1798
	32	6 89653 825941	30396 517539	12 844155	1800
	31	6 59257 308402	30409 361694	12 845955	1799
73	30	6 28847 946708	30422 207649	12 847754	1800
	29	5 98425 739059	30435 055403	12 849554	1804
	28	5 67990 683656	30447 904957	12 851358	1801
	27	5 37542 778699	30460 756315	12 853159	1805
	26	5 07082 022384	30473 609474	12 854964	1805
73	25	4 76608 412910	30486 464438	12 856769	1805
	24	4 46121 948472	30499 321207	12 858574	1807
	23	4 15622 627265	30512 179781	12 860381	1809
	22	3 85110 447484	30525 040162	12 862190	1807
	21	3 54585 407322	30537 902352	12 863997	1813
73	20	3 24047 504970	30550 766349	12 865810	1808
		9.960			

## Log Sines

c	log. sin.	$\Delta^1$	$\Delta^2$	$\Delta^3$
	9.960			
73 20	3 24047 504970	30550 766349	12 865810	1808
19	2 93496 738621	30563 632159	12 867618	1814
18	2 62933 106462	30576 499777	12 869432	1811
17	2 32356 606685	30589 369209	12 871243	1817
16	2 01767 237476	30602 240452	12 873060	1813
73 15	1 71164 997024	30615 113512	12 874873	1816
14	1 40549 883512	30627 988385	12 876689	1818
13	1 09921 895127	30640 865074	12 878507	1817
12	0 79281 030053	30653 743581	12 880324	1821
11	0 48627 286472	30666 623905	12 882145	1819
73 10	0 17960 662567	30679 506050	12 883964	1821
09	9 87281 156517	30692 390014	12 885785	1822
08	9 56588 766503	30705 275799	12 887607	1824
07	9 25883 490704	30718 163406	12 889431	1825
06	8 95165 327298	30731 052837	12 891256	1823
73 05	8 64434 274461	30743 944093	12 893079	1828
04	8 33690 330368	30756 837172	12 894907	1828
03	8 02933 493196	30769 732079	12 896735	1826
02	7 72163 761117	30782 628814	12 898561	1831
01	7 41381 132303	30795 527375	12 900392	1830
73 00	7 10585 604928	30808 427767	12 902222	1832
72 99	6 79777 177161	30821 329989	12 904054	1832
98	6 48955 847172	30834 234043	12 905886	1833
97	6 18121 613129	30847 139929	12 907719	1836
96	5 87274 473200	30860 047648	12 909555	1834
72 95	5 56414 425552	30872 957203	12 911389	1837
94	5 25541 468349	30885 868592	12 913226	1837
93	4 94655 599757	30898 781818	12 915063	1841
92	4 63756 817939	30911 696881	12 916904	1837
91	4 32845 121058	30924 613785	12 918741	1842
72 90	4 01920 507273	30937 532526	12 920583	1842
89	3 70982 974747	30950 453109	12 922425	1841
88	3 40032 521638	30963 375534	12 924266	1846
87	3 09069 146104	30976 299800	12 926112	1844
86	2 78092 846304	30989 225912	12 927956	1845
72 85	2 47103 620392	31002 153868	12 929801	1848
84	2 16101 466524	31015 083669	12 931649	1848
83	1 85086 382855	31028 015318	12 933497	1848
82	1 54058 367537	31040 948815	12 935345	1851
81	1 23017 418722	31053 884160	12 937196	1850
72 80	0 91963 534562	31066 821356	12 939046	1853
	9.959			

## Log Sines

c	log. sin.	$\Delta^1$	$\Delta^2$	$\Delta^3$
	9.959			
72 80	0 91963 534562	31066 821356	12 939046	1853
79	0 60896 713206	31079 760402	12 940899	1852
78	0 29816 952804	31092 701301	12 942751	1856
77	9 98724 251503	31105 644052	12 944607	1853
76	9 67618 607451	31118 588659	12 946460	1858
72 75	9 36500 018792	31131 535119	12 948318	1856
74	9 05368 483673	31144 483437	12 950174	1858
73	8 74224 000236	31157 433611	12 952032	1861
72	8 43066 566625	31170 385643	12 953893	1860
71	8 11896 180982	31183 339536	12 955753	1860
72 70	7 80712 841446	31196 295289	12 957613	1864
69	7 49516 546157	31209 252902	12 959477	1863
68	7 18307 293255	31222 212379	12 961340	1864
67	6 87085 080876	31235 173719	12 963204	1866
66	6 55849 907157	31248 136923	12 965070	1866
72 65	6 24601 770234	31261 101993	12 966936	1869
64	5 93340 668241	31274 068929	12 968805	1868
63	5 62066 599312	31287 037734	12 970673	1869
62	5 30779 561578	31300 008407	12 972542	1872
61	4 99479 553171	31312 980949	12 974414	1871
72 60	4 68166 572222	31325 955363	12 976285	1874
59	4 36840 616859	31338 931648	12 978159	1873
58	4 05501 685211	31351 909807	12 980032	1874
57	3 74149 775404	31364 889839	12 981906	1878
56	3 42784 885565	31377 871745	12 983784	1877
72 55	3 11407 013820	31390 855529	12 985661	1876
54	2 80016 158291	31403 841190	12 987537	1881
53	2 48612 317101	31416 828727	12 989418	1880
52	2 17195 488374	31429 818145	12 991298	1881
51	1 85765 670229	31442 809443	12 993179	1883
72 50	1 54322 860786	31455 802622	12 995062	1882
49	1 22867 058164	31468 797684	12 996944	1885
48	0 91398 260480	31481 794628	12 998829	1886
47	0 59916 465852	31494 793457	13 000715	1886
46	0 28421 672395	31507 794172	13 002601	1887
72 45	9 96913 878223	31520 796773	13 004488	1890
44	9 65393 081450	31533 801261	13 006378	1889
43	9 33859 280189	31546 807639	13 008267	1891
42	9 02312 472550	31559 815906	13 010158	1891
41	8 70752 656644	31572 826064	13 012049	1894
72 40	8 39179 830580	31585 838113	13 013943	1893
	9.957			

## Log Sines

c	log. sin.	$\Delta^1$	$\Delta^2$	$\Delta^3$
	9.957			
72 40	8 39179 830580	31585 838113	13 013943	1893
39	8 07593 992467	31598 852056	13 015836	1896
38	7 75995 140411	31611 867892	13 017732	1894
37	7 44383 272519	31624 885624	13 019626	1899
36	7 12758 386895	31637 905250	13 021525	1897
72 35	6 81120 481645	31650 926775	13 023422	1901
34	6 49469 554870	31663 950197	13 025323	1898
33	6 17805 604673	31676 975520	13 027221	1902
32	5 86128 629153	31690 002741	13 029123	1903
31	5 54438 626412	31703 031864	13 031026	1902
72 30	5 22735 594548	31716 062890	13 032928	1907
29	4 91019 531658	31729 095818	13 034835	1903
28	4 59290 435840	31742 130653	13 036738	1908
27	4 27548 305187	31755 167391	13 038646	1907
26	3 95793 137796	31768 206037	13 040553	1909
72 25	3 64024 931759	31781 246590	13 042462	1910
24	3 32243 685169	31794 289052	13 044372	1911
23	3 00449 396117	31807 333424	13 046283	1911
22	2 68642 062693	31820 379707	13 048194	1914
21	2 36821 682986	31833 427901	13 050108	1914
72 20	2 04988 255085	31846 478009	13 052022	1914
19	1 73141 777076	31859 530031	13 053936	1917
18	1 41282 247045	31872 583967	13 055853	1917
17	1 09409 663078	31885 639820	13 057770	1919
16	0 77524 023258	31898 697590	13 059689	1919
72 15	0 45625 325668	31911 757279	13 061608	1920
14	0 13713 568389	31924 818887	13 063528	1922
13	9 81788 749502	31937 882415	13 065450	1922
12	9 49850 867087	31950 947865	13 067372	1924
11	9 17899 919222	31964 015237	13 069296	1926
72 10	8 85935 903985	31977 084533	13 071222	1923
09	8 53958 819452	31990 155755	13 073145	1929
08	8 21968 663697	32003 228900	13 075074	1928
07	7 89965 434797	32016 303974	13 077002	1928
06	7 57949 130823	32029 380976	13 078930	1930
72 05	7 25919 749847	32042 459906	13 080860	1932
04	6 93877 289941	32055 540766	13 082792	1932
03	6 61821 749175	32068 623558	13 084724	1934
02	6 29753 125617	32081 708282	13 086658	1932
01	5 97671 417335	32094 794940	13 088590	1938
72 00	5 65576 622395	32107 883530	13 090528	1935
	9.956			

## Log Sines

c	log. sin.	$\Delta^1$	$\Delta^2$	$\Delta^3$
	9.956			
72 00	5 65576 622395	32107 883530	13 090528	1935
71 99	5 33468 738865	32120 974058	13 092463	1939
98	5 01347 764807	32134 066521	13 094402	1937
97	4 69213 698286	32147 160923	13 096339	1940
96	4 37066 537363	32160 257262	13 098279	1943
71 95	4 04906 280101	32173 355541	13 100222	1939
94	3 72732 924560	32186 455763	13 102161	1945
93	3 40546 468797	32199 557924	13 104106	1943
92	3 08346 910873	32212 662030	13 106049	1946
91	2 76134 248843	32225 768079	13 107995	1945
71 90	2 43908 480764	32238 876074	13 109940	1949
89	2 11669 604690	32251 986014	13 111889	1946
88	1 79417 618676	32265 097903	13 113835	1952
87	1 47152 520773	32278 211738	13 115787	1950
86	1 14874 309035	32291 327525	13 117737	1950
71 85	0 82582 981510	32304 445262	13 119687	1955
84	0 50278 536248	32317 564949	13 121642	1952
83	0 17960 971299	32330 686591	13 123594	1955
82	9 85630 284708	32343 810185	13 125549	1957
81	9 53286 474523	32356 935734	13 127506	1957
71 80	9 20929 538789	32370 063240	13 129463	1957
79	8 88559 475549	32383 192703	13 131420	1960
78	8 56176 282846	32396 324123	13 133380	1961
77	8 23779 958723	32409 457503	13 135341	1960
76	7 91370 501220	32422 592844	13 137301	1963
71 75	7 58947 908376	32435 730145	13 139264	1964
74	7 26512 178231	32448 869409	13 141228	1965
73	6 94063 308822	32462 010637	13 143193	1965
72	6 61601 298185	32475 153830	13 145158	1966
71	6 29126 144355	32488 298988	13 147124	1970
71 70	5 96637 845367	32501 446112	13 149094	1968
69	5 64136 399255	32514 595206	13 151062	1969
68	5 31621 804049	32527 746268	13 153031	1973
67	4 99094 057781	32540 899299	13 155004	1972
66	4 66553 158482	32554 054303	13 156976	1973
71 65	4 33999 104179	32567 211279	13 158949	1974
64	4 01431 892900	32580 370228	13 160923	1976
63	3 68851 522672	32593 531151	13 162899	1977
62	3 36257 991521	32606 694050	13 164876	1978
61	3 03651 297471	32619 858926	13 166854	1978
71 60	2 71031 438545	32633 025780	13 168832	1981
	9.955			

## Log Sines

c	log. sin.	$\Delta^1$	$\Delta^2$	$\Delta^3$
	9.955			
71 60	2 71031 438545	32633 025780	13 168832	1981
59	2 38398 412765	32646 194612	13 170813	1980
58	2 05752 218153	32659 365425	13 172793	1982
57	1 73092 852728	32672 538218	13 174775	1985
56	1 40420 314510	32685 712993	13 176760	1982
71 55	1 07734 601517	32698 889753	13 178742	1988
54	0 75035 711764	32712 068495	13 180730	1985
53	0 42323 643269	32725 249225	13 182715	1987
52	0 09598 394044	32738 431940	13 184702	1990
51	9 76859 962104	32751 616642	13 186692	1990
71 50	9 44108 345462	32764 803334	13 188682	1991
49	9 11343 542128	32777 992016	13 190673	1990
48	8 78565 550112	32791 182689	13 192663	1996
47	8 45774 367423	32804 375352	13 194659	1993
46	8 12969 992071	32817 570011	13 196652	1994
71 45	7 80152 422060	32830 766663	13 198646	1999
44	7 47321 655397	32843 965309	13 200645	1996
43	7 14477 690088	32857 165954	13 202641	1999
42	6 81620 524134	32870 368595	13 204640	2000
41	6 48750 155539	32883 573235	13 206640	2001
71 40	6 15866 582304	32896 779875	13 208641	2002
39	5 82969 802429	32909 988516	13 210643	2002
38	5 50059 813913	32923 199159	13 212645	2006
37	5 17136 614754	32936 411804	13 214651	2004
36	4 84200 202950	32949 626455	13 216655	2006
71 35	4 51250 576495	32962 843110	13 218661	2010
34	4 18287 733385	32976 061771	13 220671	2006
33	3 85311 671614	32989 282442	13 222677	2011
32	3 52322 389172	33002 505119	13 224688	2011
31	3 19319 884053	33015 729807	13 226699	2011
71 30	2 86304 154246	33028 956506	13 228710	2014
29	2 53275 197740	33042 185216	13 230724	2014
28	2 20233 012524	33055 415940	13 232738	2016
27	1 87177 596584	33068 648678	13 234754	2015
26	1 54108 947906	33081 883432	13 236769	2019
71 25	1 21027 064474	33095 120201	13 238788	2017
24	0 87931 944273	33108 358989	13 240805	2021
23	0 54823 585284	33121 599794	13 242826	2021
22	0 21701 985490	33134 842620	13 244847	2022
21	9 88567 142870	33148 087467	13 246869	2022
71 20	9 55419 055403	33161 334336	13 248891	2025
	9.953			

## Log Sines

c		log. sin.	$\Delta^1$	$\Delta^2$	$\Delta^3$
		9.953			
71	20	9 55419 055403	33161 334336	13 248891	2025
	19	9 22257 721067	33174 583227	13 250916	2026
	18	8 89083 137840	33187 834143	13 252942	2026
	17	8 55895 303697	33201 087085	13 254968	2027
	16	8 22694 216612	33214 342053	13 256995	2029
71	15	7 89479 874559	33227 599048	13 259024	2030
	14	7 56252 275511	33240 858072	13 261054	2032
	13	7 23011 417439	33254 119126	13 263086	2030
	12	6 89757 298313	33267 382212	13 265116	2035
	11	6 56489 916101	33280 647328	13 267151	2034
71	10	6 23209 268773	33293 914479	13 269185	2034
	09	5 89915 354294	33307 183664	13 271219	2039
	08	5 56608 170630	33320 454883	13 273258	2035
	07	5 23287 715747	33333 728141	13 275293	2041
	06	4 89953 987606	33347 003434	13 277334	2039
71	05	4 56606 984172	33360 280768	13 279373	2042
	04	4 23246 703404	33373 560141	13 281415	2040
	03	3 89873 143263	33386 841556	13 283455	2046
	02	3 56486 301707	33400 125011	13 285501	2043
	01	3 23086 176696	33413 410512	13 287544	2045
71	00	2 89672 766184	33426 698056	13 289589	2048
70	99	2 56246 068128	33439 987645	13 291637	2047
	98	2 22806 080483	33453 279282	13 293684	2050
	97	1 89352 801201	33466 572966	13 295734	2049
	96	1 55886 228235	33479 868700	13 297783	2052
70	95	1 22406 359535	33493 166483	13 299835	2052
	94	0 88913 193052	33506 466318	13 301887	2053
	93	0 55406 726734	33519 768205	13 303940	2056
	92	0 21886 958529	33533 072145	13 305996	2054
	91	9 88353 886384	33546 378141	13 308050	2059
70	90	9 54807 508243	33559 686191	13 310109	2056
	89	9 21247 822052	33572 996300	13 312165	2060
	88	8 87674 825752	33586 308465	13 314225	2060
	87	8 54088 517287	33599 622690	13 316285	2062
	86	8 20488 894597	33612 938975	13 318347	2062
70	85	7 86875 955622	33626 257322	13 320409	2065
	84	7 53249 698300	33639 577731	13 322474	2063
	83	7 19610 120569	33652 900205	13 324537	2067
	82	6 85957 220364	33666 224742	13 326604	2066
	81	6 52290 995622	33679 551346	13 328670	2070
70	80	6 18611 444276	33692 880016	13 330740	2069
		9.952			



## Log Sines

c		log. sin.	$\Delta^1$	$\Delta^2$	$\Delta^3$
		9.952			
70	80	6 18611 444276	33692 880016	13 330740	2069
	79	5 84918 564260	33706 210756	13 332809	2070
	78	5 51212 353504	33719 543565	13 334879	2071
	77	5 17492 809939	33732 878444	13 336950	2074
	76	4 83759 931495	33746 215394	13 339024	2074
70	75	4 50013 716101	33759 554418	13 341098	2074
	74	4 16254 161683	33772 895516	13 343172	2077
	73	3 82481 266167	33786 238688	13 345249	2078
	72	3 48695 027479	33799 583937	13 347327	2077
	71	3 14895 443542	33812 931264	13 349404	2081
70	70	2 81082 512278	33826 280668	13 351485	2080
	69	2 47256 231610	33839 632153	13 353565	2083
	68	2 13416 599457	33852 985718	13 355648	2081
	67	1 79563 613739	33866 341366	13 357729	2087
	66	1 45697 272373	33879 699095	13 359816	2084
70	65	1 11817 573278	33893 058911	13 361900	2086
	64	0 77924 514367	33906 420811	13 363986	2088
	63	0 44018 093556	33919 784797	13 366074	2090
	62	0 10098 308759	33933 150871	13 368164	2089
	61	9 76165 157888	33946 519035	13 370253	2091
70	60	9 42218 638853	33959 889288	13 372344	2093
	59	9 08258 749565	33973 261632	13 374437	2093
	58	8 74285 487933	33986 636069	13 376530	2095
	57	8 40298 851864	34000 012599	13 378625	2095
	56	8 06298 839265	34013 391224	13 380720	2097
70	55	7 72285 448041	34026 771944	13 382817	2099
	54	7 38258 676097	34040 154761	13 384916	2099
	53	7 04218 521336	34053 539677	13 387015	2099
	52	6 70164 981659	34066 926692	13 389114	2103
	51	6 36098 054967	34080 315806	13 391217	2103
70	50	6 02017 739161	34093 707023	13 393320	2102
	49	5 67924 032138	34107 100343	13 395422	2106
	48	5 33816 931795	34120 495765	13 397528	2107
	47	4 99696 436030	34133 893293	13 399635	2106
	46	4 65562 542737	34147 292928	13 401741	2110
70	45	4 31415 249809	34160 694669	13 403851	2107
	44	3 97254 555140	34174 098520	13 405958	2114
	43	3 63080 456620	34187 504478	13 408072	2110
	42	3 28892 952142	34200 912550	13 410182	2113
	41	2 94692 039592	34214 322732	13 412295	2115
70	40	2 60477 716860	34227 735027	13 414410	2115
		9.951			

## Log Sines

c	log. sin.	$\Delta^1$	$\Delta^2$	$\Delta^3$
	9.951			
70 40	2 60477 716860	34227 735027	13 414410	2115
39	2 26249 981833	34241 149437	13 416525	2117
38	1 92008 832396	34254 565962	13 418642	2117
37	1 57754 266434	34267 984604	13 420759	2120
36	1 23486 281830	34281 405363	13 422879	2120
70 35	0 89204 876467	34294 828242	13 424999	2120
34	0 54910 048225	34308 253241	13 427119	2124
33	0 20601 794984	34321 680360	13 429243	2123
32	9 86280 114624	34335 109603	13 431366	2124
31	9 51945 005021	34348 540969	13 433490	2126
70 30	9 17596 464052	34361 974459	13 435616	2129
29	8 83234 489593	34375 410075	13 437745	2126
28	8 48859 079518	34388 847820	13 439871	2130
27	8 14470 231698	34402 287691	13 442001	2131
26	7 80067 944007	34415 729692	13 444132	2132
70 25	7 45652 214315	34429 173824	13 446264	2133
24	7 11223 040491	34442 620088	13 448397	2133
23	6 76780 420403	34456 068485	13 450530	2136
22	6 42324 351918	34469 519015	13 452666	2137
21	6 07854 832903	34482 971681	13 454803	2136
70 20	5 73371 861222	34496 426484	13 456939	2141
19	5 38875 434738	34509 883423	13 459080	2138
18	5 04365 551315	34523 342503	13 461218	2142
17	4 69842 208812	34536 803721	13 463360	2143
16	4 35305 405091	34550 267081	13 465503	2142
70 15	4 00755 138010	34563 732584	13 467645	2146
14	3 66191 405426	34577 200229	13 469791	2145
13	3 31614 205197	34590 670020	13 471936	2148
12	2 97023 535177	34604 141956	13 474084	2147
11	2 62419 393221	34617 616040	13 476231	2150
70 10	2 27801 777181	34631 092271	13 478381	2151
09	1 93170 684910	34644 570652	13 480532	2150
08	1 58526 114258	34658 051184	13 482682	2155
07	1 23868 063074	34671 533866	13 484837	2154
06	0 89196 529208	34685 018703	13 486991	2154
70 05	0 54511 510505	34698 505694	13 489145	2157
04	0 19813 004811	34711 994839	13 491302	2157
03	9 85101 009972	34725 486141	13 493459	2161
02	9 50375 523831	34738 979600	13 495620	2158
01	9 15636 544231	34752 475220	13 497778	2162
70 00	8 80884 069011	34765 972998	13 499940	2162
	9.949			

## Log Sines

c	log. sin.	$\Delta^1$	$\Delta^2$	$\Delta^3$
	9.949			
70 00	8 80884 069011	34765 972998	13 499940	2162
69 99	8 46118 096013	34779 472938	13 502102	2163
98	8 11338 623075	34792 975040	13 504265	2167
97	7 76545 648035	34806 479305	13 506432	2163
96	7 41739 168730	34819 985737	13 508595	2170
69 95	7 06919 182993	34833 494332	13 510765	2166
94	6 72085 688661	34847 005097	13 512931	2172
93	6 37238 683564	34860 518028	13 515103	2168
92	6 02378 165536	34874 033131	13 517271	2173
91	5 67504 132405	34887 550402	13 519444	2174
69 90	5 32616 582003	34901 069846	13 521618	2173
89	4 97715 512157	34914 591464	13 523791	2176
88	4 62800 920693	34928 115255	13 525967	2177
87	4 27872 805438	34941 641222	13 528144	2177
86	3 92931 164216	34955 169366	13 530321	2180
69 85	3 57975 994850	34968 699687	13 532501	2179
84	3 23007 295163	34982 232188	13 534680	2183
83	2 88025 062975	34995 766868	13 536863	2182
82	2 53029 296107	35009 303731	13 539045	2184
81	2 18019 992376	35022 842776	13 541229	2184
69 80	1 82997 149600	35036 384005	13 543413	2187
79	1 47960 765595	35049 927418	13 545600	2188
78	1 12910 838177	35063 473018	13 547788	2188
77	0 77847 365159	35077 020806	13 549976	2190
76	0 42770 344353	35090 570782	13 552166	2190
69 75	0 07679 773571	35104 122948	13 554356	2194
74	9 72575 650623	35117 677304	13 556550	2192
73	9 37457 973319	35131 233854	13 558742	2196
72	9 02326 739465	35144 792596	13 560938	2194
71	8 67181 946869	35158 353534	13 563132	2199
69 70	8 32023 593335	35171 916666	13 565331	2197
69	7 96851 676669	35185 481997	13 567528	2199
68	7 61666 194672	35199 049525	13 569727	2203
67	7 26467 145147	35212 619252	13 571930	2199
66	6 91254 525895	35226 191182	13 574129	2204
69 65	6 56028 334713	35239 765311	13 576333	2206
64	6 20788 569402	35253 341644	13 578539	2203
63	5 85535 227758	35266 920183	13 580742	2208
62	5 50268 307575	35280 500925	13 582950	2207
61	5 14987 806650	35294 083875	13 585157	2210
69 60	4 79693 722775	35307 669032	13 587367	2211
	9.948			

## Log Sines

c		log. sin.	$\Delta^1$	$\Delta^2$	$\Delta^3$
		9.948			
69	60	4 79693 722775	35307 669032	13 587367	2211
	59	4 44386 053743	35321 256399	13 589578	2209
	58	4 09064 797344	35334 845977	13 591787	2215
	57	3 73729 951367	35348 437764	13 594002	2214
	56	3 38381 513603	35362 031766	13 596216	2213
69	55	3 03019 481837	35375 627982	13 598429	2218
	54	2 67643 853855	35389 226411	13 600647	2218
	53	2 32254 627444	35402 827058	13 602865	2217
	52	1 96851 800386	35416 429923	13 605082	2222
	51	1 61435 370463	35430 035005	13 607304	2220
69	50	1 26005 335458	35443 642309	13 609524	2223
	49	0 90561 693149	35457 251833	13 611747	2223
	48	0 55104 441316	35470 863580	13 613970	2225
	47	0 19633 577736	35484 477550	13 616195	2227
	46	9 84149 100186	35498 093745	13 618422	2226
69	45	9 48651 006441	35511 712167	13 620648	2229
	44	9 13139 294274	35525 332815	13 622877	2231
	43	8 77613 961459	35538 955692	13 625108	2229
	42	8 42075 005767	35552 580800	13 627337	2233
	41	8 06522 424967	35566 208137	13 629570	2234
69	40	7 70956 216830	35579 837707	13 631804	2234
	39	7 35376 379123	35593 469511	13 634038	2236
	38	6 99782 909612	35607 103549	13 636274	2236
	37	6 64175 806063	35620 739823	13 638510	2240
	36	6 28555 066240	35634 378333	13 640750	2239
69	35	5 92920 687907	35648 019083	13 642989	2241
	34	5 57272 668824	35661 662072	13 645230	2241
	33	5 21611 006752	35675 307302	13 647471	2243
	32	4 85935 699450	35688 954773	13 649714	2246
	31	4 50246 744677	35702 604487	13 651960	2245
69	30	4 14544 140190	35716 256447	13 654205	2246
	29	3 78827 883743	35729 910652	13 656451	2250
	28	3 43097 973091	35743 567103	13 658701	2247
	27	3 07354 405988	35757 225804	13 660948	2252
	26	2 71597 180184	35770 886752	13 663200	2251
69	25	2 35826 293432	35784 549952	13 665451	2254
	24	2 00041 743480	35798 215403	13 667705	2254
	23	1 64243 528077	35811 883108	13 669959	2255
	22	1 28431 644969	35825 553067	13 672214	2258
	21	0 92606 091902	35839 225281	13 674472	2256
69	20	0 56766 866621	35852 899753	13 676728	2260
		9.947			

## Log Sines

c	log. sin.	$\Delta^1$	$\Delta^2$	$\Delta^3$
	9.94			
69 20	70 56766 866621	35852 899753	13 676728	2260
19	70 20913 966868	35866 576481	13 678988	2261
18	69 85047 390387	35880 255469	13 681249	2261
17	69 49167 134918	35893 936718	13 683510	2263
16	69 13273 198200	35907 620228	13 685773	2265
69 15	68 77365 577972	35921 306001	13 688038	2264
14	68 41444 271971	35934 994039	13 690302	2268
13	68 05509 277932	35948 684341	13 692570	2266
12	67 69560 593591	35962 376911	13 694836	2271
11	67 33598 216680	35976 071747	13 697107	2270
69 10	66 97622 144933	35989 768854	13 699377	2270
09	66 61632 376079	36003 468231	13 701647	2275
08	66 25628 907848	36017 169878	13 703922	2273
07	65 89611 737970	36030 873800	13 706195	2275
06	65 53580 864170	36044 579995	13 708470	2277
69 05	65 17536 284175	36058 288465	13 710747	2277
04	64 81477 995710	36071 999212	13 713024	2280
03	64 45405 996498	36085 712236	13 715304	2280
02	64 09320 284262	36099 427540	13 717584	2282
01	63 73220 856722	36113 145124	13 719866	2282
69 00	63 37107 711598	36126 864990	13 722148	2284
68 99	63 00980 846608	36140 587138	13 724432	2286
98	62 64840 259470	36154 311570	13 726718	2285
97	62 28685 947900	36168 038288	13 729003	2290
96	61 92517 909612	36181 767291	13 731293	2287
68 95	61 56336 142321	36195 498584	13 733580	2291
94	61 20140 643737	36209 232164	13 735871	2292
93	60 83931 411573	36222 968035	13 738163	2293
92	60 47708 443538	36236 706198	13 740456	2292
91	60 11471 737340	36250 446654	13 742748	2298
68 90	59 75221 290686	36264 189402	13 745046	2294
89	59 38957 101284	36277 934448	13 747340	2299
88	59 02679 166836	36291 681788	13 749639	2300
87	58 66387 485048	36305 431427	13 751939	2298
86	58 30082 053621	36319 183366	13 754237	2304
68 85	57 93762 870255	36332 937603	13 756541	2301
84	57 57429 932652	36346 694144	13 758842	2304
83	57 21083 238508	36360 452986	13 761146	2307
82	56 84722 785522	36374 214132	13 763453	2305
81	56 48348 571390	36387 977585	13 765758	2309
68 80	56 11960 593805	36401 743343	13 768067	2308
	9.94			

## Log Sines

c		log. sin.		$\Delta^1$		$\Delta^2$		$\Delta^3$
		9.94						
68	80	56	11960 593805	36401	743343	13	768067	2308
	79	55	75558 850462	36415	511410	13	770375	2311
	78	55	39143 339052	36429	281785	13	772686	2311
	77	55	02714 057267	36443	054471	13	774997	2313
	76	54	66271 002796	36456	829468	13	777310	2315
68	75	54	29814 173328	36470	606778	13	779625	2315
	74	53	93343 566550	36484	386403	13	781940	2317
	73	53	56859 180147	36498	168343	13	784257	2316
	72	53	20361 011804	36511	952600	13	786573	2322
	71	52	83849 059204	36525	739173	13	788895	2319
68	70	52	47323 320031	36539	528068	13	791214	2321
	69	52	10783 791963	36553	319282	13	793535	2324
	68	51	74230 472681	36567	112817	13	795859	2325
	67	51	37663 359864	36580	908676	13	798184	2324
	66	51	01082 451188	36594	706860	13	800508	2327
68	65	50	64487 744328	36608	507368	13	802835	2329
	64	50	27879 236960	36622	310203	13	805164	2329
	63	49	91256 926757	36636	115367	13	807493	2330
	62	49	54620 811390	36649	922860	13	809823	2333
	61	49	17970 888530	36663	732683	13	812156	2332
68	60	48	81307 155847	36677	544839	13	814488	2335
	59	48	44629 611008	36691	359327	13	816823	2336
	58	48	07938 251681	36705	176150	13	819159	2336
	57	47	71233 075531	36718	995309	13	821495	2340
	56	47	34514 080222	36732	816804	13	823835	2337
68	55	46	97781 263418	36746	640639	13	826172	2343
	54	46	61034 622779	36760	466811	13	828515	2341
	53	46	24274 155968	36774	295326	13	830856	2344
	52	45	87499 860642	36788	126182	13	833200	2344
	51	45	50711 734460	36801	959382	13	835544	2346
68	50	45	13909 775078	36815	794926	13	837890	2348
	49	44	77093 980152	36829	632816	13	840238	2348
	48	44	40264 347336	36843	473054	13	842586	2349
	47	44	03420 874282	36857	315640	13	844935	2352
	46	43	66563 558642	36871	160575	13	847287	2352
68	45	43	29692 398067	36885	007862	13	849639	2354
	44	42	92807 390205	36898	857501	13	851993	2354
	43	42	55908 532704	36912	709494	13	854347	2357
	42	42	18995 823210	36926	563841	13	856704	2357
	41	41	82069 259369	36940	420545	13	859061	2358
68	40	41	45128 838824	36954	279606	13	861419	2362
		9.94						

## Log Sines

c	log. sin.				$\Delta^1$	$\Delta^2$	$\Delta^3$
	9.94						
68 40	41	45128	838824	36954	279606	13 861419	2362
39	41	08174	559218	36968	141025	13 863781	2360
38	40	71206	418193	36982	004806	13 866141	2363
37	40	34224	413387	36995	870947	13 868504	2364
36	39	97228	542440	37009	739451	13 870868	2365
68 35	39	60218	802989	37023	610319	13 873233	2366
34	39	23195	192670	37037	483552	13 875599	2368
33	38	86157	709118	37051	359151	13 877967	2369
32	38	49106	349967	37065	237118	13 880336	2371
31	38	12041	112849	37079	117454	13 882707	2371
68 30	37	74961	995395	37093	000161	13 885078	2374
29	37	37868	995234	37106	885239	13 887452	2373
28	37	00762	109995	37120	772691	13 889825	2375
27	36	63641	337304	37134	662516	13 892200	2379
26	36	26506	674788	37148	554716	13 894579	2376
68 25	35	89358	120072	37162	449295	13 896955	2380
24	35	52195	670777	37176	346250	13 899335	2382
23	35	15019	324527	37190	245585	13 901717	2380
22	34	77829	078942	37204	147302	13 904097	2385
21	34	40624	931640	37218	051399	13 906482	2383
68 20	34	03406	880241	37231	957881	13 908865	2388
19	33	66174	922360	37245	866746	13 911253	2385
18	33	28929	055614	37259	777999	13 913638	2390
17	32	91669	277615	37273	691637	13 916028	2389
16	32	54395	585978	37287	607665	13 918417	2391
68 15	32	17107	978313	37301	526082	13 920808	2393
14	31	79806	452231	37315	446890	13 923201	2394
13	31	42491	005341	37329	370091	13 925595	2394
12	31	05161	635250	37343	295686	13 927989	2398
11	30	67818	339564	37357	223675	13 930387	2395
68 10	30	30461	115889	37371	154062	13 932782	2401
09	29	93089	961827	37385	086844	13 935183	2400
08	29	55704	874983	37399	022027	13 937583	2401
07	29	18305	852956	37412	959610	13 939984	2403
06	28	80892	893346	37426	899594	13 942387	2405
68 05	28	43465	993752	37440	841981	13 944792	2404
04	28	06025	151771	37454	786773	13 947196	2408
03	27	68570	364998	37468	733969	13 949604	2407
02	27	31101	631029	37482	683573	13 952011	2411
01	26	93618	947456	37496	635584	13 954422	2409
68 00	26	56122	311872	37510	590006	13 956831	2413
	9.94						

## Log Sines

c	log. sin.	$\Delta^1$	$\Delta^2$	$\Delta^3$
	9.94			
68 00	26 56122 311872	37510 590006	13 956831	2413
67 99	26 18611 721866	37524 546837	13 959244	2414
98	25 81087 175029	37538 506081	13 961658	2413
97	25 43548 668948	37552 467739	13 964071	2418
96	25 05996 201209	37566 431810	13 966489	2415
67 95	24 68429 769399	37580 398299	13 968904	2420
94	24 30849 371100	37594 367203	13 971324	2420
93	23 93255 003897	37608 338527	13 973744	2421
92	23 55646 665370	37622 312271	13 976165	2423
91	23 18024 353099	37636 288436	13 978588	2423
67 90	22 80388 064663	37650 267024	13 981011	2426
89	22 42737 797639	37664 248035	13 983437	2426
88	22 05073 549604	37678 231472	13 985863	2429
87	21 67395 318132	37692 217335	13 988292	2427
86	21 29703 100797	37706 205627	13 990719	2433
67 85	20 91996 895170	37720 196346	13 993152	2430
84	20 54276 698824	37734 189498	13 995582	2434
83	20 16542 509326	37748 185080	13 998016	2434
82	19 78794 324246	37762 183096	14 000450	2437
81	19 41032 141150	37776 183546	14 002887	2435
67 80	19 03255 957604	37790 186433	14 005322	2441
79	18 65465 771171	37804 191755	14 007763	2438
78	18 27661 579416	37818 199518	14 010201	2441
77	17 89843 379898	37832 209719	14 012642	2444
76	17 52011 170179	37846 222361	14 015086	2442
67 75	17 14164 947818	37860 237447	14 017528	2447
74	16 76304 710371	37874 254975	14 019975	2445
73	16 38430 455396	37888 274950	14 022420	2448
72	16 00542 180446	37902 297370	14 024868	2449
71	15 62639 883076	37916 322238	14 027317	2451
67 70	15 24723 560838	37930 349555	14 029768	2452
69	14 86793 211283	37944 379323	14 032220	2453
68	14 48848 831960	37958 411543	14 034673	2453
67	14 10890 420417	37972 446216	14 037126	2458
66	13 72917 974201	37986 483342	14 039584	2455
67 65	13 34931 490859	38000 522926	14 042039	2460
64	12 96930 967933	38014 564965	14 044499	2459
63	12 58916 402968	38028 609464	14 046958	2462
62	12 20887 793504	38042 656422	14 049420	2462
61	11 82845 137082	38056 705842	14 051882	2463
67 60	11 44788 431240	38070 757724	14 054345	2467
	9.94			



## Log Sines

c		log. sin.	$\Delta^1$	$\Delta^2$	$\Delta^3$
		9.94			
67	60	11 44788 431240	38070 757724	14 054345	2467
	59	11 06717 673516	38084 812069	14 056812	2464
	58	10 68632 861447	38098 868881	14 059276	2471
	57	10 30533 992566	38112 928157	14 061747	2466
	56	09 92421 064409	38126 989904	14 064213	2473
67	55	09 54294 074505	38141 054117	14 066686	2470
	54	09 16153 020388	38155 120803	14 069156	2475
	53	08 77997 899585	38169 189959	14 071631	2473
	52	08 39828 709626	38183 261590	14 074104	2477
	51	08 01645 448036	38197 335694	14 076581	2477
67	50	07 63448 112342	38211 412275	14 079058	2478
	49	07 25236 700067	38225 491333	14 081536	2481
	48	06 87011 208734	38239 572869	14 084017	2481
	47	06 48771 635865	38253 656886	14 086498	2482
	46	06 10517 978979	38267 743384	14 088980	2485
67	45	05 72250 235595	38281 832364	14 091465	2485
	44	05 33968 403231	38295 923829	14 093950	2486
	43	04 95672 479402	38310 017779	14 096436	2489
	42	04 57362 461623	38324 114215	14 098925	2489
	41	04 19038 347408	38338 213140	14 101414	2492
67	40	03 80700 134268	38352 314554	14 103906	2490
	39	03 42347 819714	38366 418460	14 106396	2495
	38	03 03981 401254	38380 524856	14 108891	2494
	37	02 65600 876398	38394 633747	14 111385	2498
	36	02 27206 242651	38408 745132	14 113883	2495
67	35	01 88797 497519	38422 859015	14 116378	2501
	34	01 50374 638504	38436 975393	14 118879	2499
	33	01 11937 663111	38451 094272	14 121378	2503
	32	00 73486 568839	38465 215650	14 123881	2502
	31	00 35021 353189	38479 339531	14 126383	2504
67	30	99 96542 013658	38493 465914	14 128887	2507
	29	99 58048 547744	38507 594801	14 131394	2507
	28	99 19540 952943	38521 726195	14 133901	2507
	27	98 81019 226748	38535 860096	14 136408	2512
	26	98 42483 366652	38549 996504	14 138920	2509
67	25	98 03933 370148	38564 135424	14 141429	2514
	24	97 65369 234724	38578 276853	14 143943	2514
	23	97 26790 957871	38592 420796	14 146457	2514
	22	96 88198 537075	38606 567253	14 148971	2519
	21	96 49591 969822	38620 716224	14 151490	2515
67	20	96 10971 253598	38634 867714	14 154005	2522
		9.93			

## Log Sines

c		log. sin.		$\Delta^1$	$\Delta^2$	$\Delta^3$
		9.93				
67	20	96	10971 253598	38634 867714	14 154005	2522
	19	95	72336 385884	38649 021719	14 156527	2520
	18	95	33687 364165	38663 178246	14 159047	2522
	17	94	95024 185919	38677 337293	14 161569	2524
	16	94	56346 848626	38691 498862	14 164093	2524
67	15	94	17655 349764	38705 662955	14 166617	2527
	14	93	78949 686809	38719 829572	14 169144	2528
	13	93	40229 857237	38733 998716	14 171672	2528
	12	93	01495 858521	38748 170388	14 174200	2531
	11	92	62747 688133	38762 344588	14 176731	2531
67	10	92	23985 343545	38776 521319	14 179262	2535
	09	91	85208 822226	38790 700581	14 181797	2533
	08	91	46418 121645	38804 882378	14 184330	2537
	07	91	07613 239267	38819 066708	14 186867	2537
	06	90	68794 172559	38833 253575	14 189404	2538
67	05	90	29960 918984	38847 442979	14 191942	2540
	04	89	91113 476005	38861 634921	14 194482	2543
	03	89	52251 841084	38875 829403	14 197025	2541
	02	89	13376 011681	38890 026428	14 199566	2546
	01	88	74485 985253	38904 225994	14 202112	2544
67	00	88	35581 759259	38918 428106	14 204656	2548
66	99	87	96663 331153	38932 632762	14 207204	2548
	98	87	57730 698391	38946 839966	14 209752	2550
	97	87	18783 858425	38961 049718	14 212302	2550
	96	86	79822 808707	38975 262020	14 214852	2555
66	95	86	40847 546687	38989 476872	14 217407	2552
	94	86	01858 069815	39003 694279	14 219959	2556
	93	85	62854 375536	39017 914238	14 222515	2556
	92	85	23836 461298	39032 136753	14 225071	2559
	91	84	84804 324545	39046 361824	14 227630	2560
66	90	84	45757 962721	39060 589454	14 230190	2559
	89	84	06697 373267	39074 819644	14 232749	2564
	88	83	67622 553623	39089 052393	14 235313	2563
	87	83	28533 501230	39103 287706	14 237876	2565
	86	82	89430 213524	39117 525582	14 240441	2566
66	85	82	50312 687942	39131 766023	14 243007	2569
	84	82	11180 921919	39146 009030	14 245576	2569
	83	81	72034 912889	39160 254606	14 248145	2571
	82	81	32874 658283	39174 502751	14 250716	2571
	81	80	93700 155532	39188 753467	14 253287	2574
66	80	80	54511 402065	39203 006754	14 255861	2574
		9.93				

## Log Sines

c		log. sin.	$\Delta^1$	$\Delta^2$	$\Delta^3$
		9.93			
66	80	80 54511 402065	39203 006754	14 255861	2574
	79	80 15308 395311	39217 262615	14 258435	2578
	78	79 76091 132696	39231 521050	14 261013	2577
	77	79 36859 611646	39245 782063	14 263590	2579
	76	78 97613 829583	39260 045653	14 266169	2580
66	75	78 58353 783930	39274 311822	14 268749	2582
	74	78 19079 472108	39288 580571	14 271331	2584
	73	77 79790 891537	39302 851902	14 273915	2584
	72	77 40488 039635	39317 125817	14 276499	2586
	71	77 01170 913818	39331 402316	14 279085	2589
66	70	76 61839 511502	39345 681401	14 281674	2587
	69	76 22493 830101	39359 963075	14 284261	2591
	68	75 83133 867026	39374 247336	14 286852	2592
	67	75 43759 619690	39388 534188	14 289444	2593
	66	75 04371 085502	39402 823632	14 292037	2595
66	65	74 64968 261870	39417 115669	14 294632	2595
	64	74 25551 146201	39431 410301	14 297227	2599
	63	73 86119 735900	39445 707528	14 299826	2597
	62	73 46674 028372	39460 007354	14 302423	2601
	61	73 07214 021018	39474 309777	14 305024	2601
66	60	72 67739 711241	39488 614801	14 307625	2604
	59	72 28251 096440	39502 922426	14 310229	2605
	58	71 88748 174014	39517 232655	14 312834	2604
	57	71 49230 941359	39531 545489	14 315438	2608
	56	71 09699 395870	39545 860927	14 318046	2610
66	55	70 70153 534943	39560 178973	14 320656	2609
	54	70 30593 355970	39574 499629	14 323265	2611
	53	69 91018 856341	39588 822894	14 325876	2614
	52	69 51430 033447	39603 148770	14 328490	2614
	51	69 11826 884677	39617 477260	14 331104	2616
66	50	68 72209 407417	39631 808364	14 333720	2617
	49	68 32577 599053	39646 142084	14 336337	2619
	48	67 92931 456969	39660 478421	14 338956	2620
	47	67 53270 978548	39674 817377	14 341576	2622
	46	67 13596 161171	39689 158953	14 344198	2621
66	45	66 73907 002218	39703 503151	14 346819	2627
	44	66 34203 499067	39717 849970	14 349446	2624
	43	65 94485 649097	39732 199416	14 352070	2628
	42	65 54753 449681	39746 551486	14 354698	2629
	41	65 15006 898195	39760 906184	14 357327	2629
66	40	64 75245 992011	39775 263511	14 359956	2632
		9.93			

## Log Sines

c	log. sin.	$\Delta^1$	$\Delta^2$	$\Delta^3$
	9.93			
66 40	64 75245 992011	39775 263511	14 359956	2632
39	64 35470 728500	39789 623467	14 362588	2634
38	63 95681 105033	39803 986055	14 365222	2633
37	63 55877 118978	39818 351277	14 367855	2636
36	63 16058 767701	39832 719132	14 370491	2638
66 35	62 76226 048569	39847 089623	14 373129	2638
34	62 36378 958946	39861 462752	14 375767	2640
33	61 96517 496194	39875 838519	14 378407	2643
32	61 56641 657675	39890 216926	14 381050	2641
31	61 16751 440749	39904 597976	14 383691	2646
66 30	60 76846 842773	39918 981667	14 386337	2646
29	60 36927 861106	39933 368004	14 388983	2646
28	59 96994 493102	39947 756987	14 391629	2649
27	59 57046 736115	39962 148616	14 394278	2651
26	59 17084 587499	39976 542894	14 396929	2652
66 25	58 77108 044605	39990 939823	14 399581	2652
24	58 37117 104782	40005 339404	14 402233	2655
23	57 97111 765378	40019 741637	14 404888	2656
22	57 57092 023741	40034 146525	14 407544	2657
21	57 17057 877216	40048 554069	14 410201	2659
66 20	56 77009 323147	40062 964270	14 412860	2661
19	56 36946 358877	40077 377130	14 415521	2662
18	55 96868 981747	40091 792651	14 418183	2662
17	55 56777 189096	40106 210834	14 420845	2665
16	55 16670 978262	40120 631679	14 423510	2667
66 15	54 76550 346583	40135 055189	14 426177	2667
14	54 36415 291394	40149 481366	14 428844	2669
13	53 96265 810028	40163 910210	14 431513	2670
12	53 56101 899818	40178 341723	14 434183	2672
11	53 15923 558095	40192 775906	14 436855	2675
66 10	52 75730 782189	40207 212761	14 439530	2673
09	52 35523 569428	40221 652291	14 442203	2677
08	51 95301 917137	40236 094494	14 444880	2678
07	51 55065 822643	40250 539374	14 447558	2679
06	51 14815 283269	40264 986932	14 450237	2680
66 05	50 74550 296337	40279 437169	14 452917	2683
04	50 34270 859168	40293 890086	14 455600	2684
03	49 93976 969082	40308 345686	14 458284	2684
02	49 53668 623396	40322 803970	14 460968	2687
01	49 13345 819426	40337 264938	14 463655	2688
66 00	48 73008 554488	40351 728593	14 466343	2689
	9.93			

## Log Sines

c	log. sin.	$\Delta^1$	$\Delta^2$	$\Delta^3$
	9.93			
66 00	48 73008 554488	40351 728593	14 466343	2689
65 99	48 32656 825895	40366 194936	14 469032	2691
98	47 92290 630959	40380 663968	14 471723	2693
97	47 51909 966991	40395 135691	14 474416	2694
96	47 11514 831300	40409 610107	14 477110	2694
65 95	46 71105 221193	40424 087217	14 479804	2698
94	46 30681 133976	40438 567021	14 482502	2697
93	45 90242 566955	40453 049523	14 485199	2702
92	45 49789 517432	40467 534722	14 487901	2698
91	45 09321 982710	40482 022623	14 490599	2706
65 90	44 68839 960087	40496 513222	14 493305	2701
89	44 28343 446865	40511 006527	14 496006	2708
88	43 87832 440338	40525 502533	14 498714	2706
87	43 47306 937805	40540 001247	14 501420	2708
86	43 06766 936558	40554 502667	14 504128	2712
65 85	42 66212 433891	40569 006795	14 506840	2709
84	42 25643 427096	40583 513635	14 509549	2715
83	41 85059 913461	40598 023184	14 512264	2713
82	41 44461 890277	40612 535448	14 514977	2717
81	41 03849 354829	40627 050425	14 517694	2716
65 80	40 63222 304404	40641 568119	14 520410	2721
79	40 22580 736285	40656 088529	14 523131	2719
78	39 81924 647756	40670 611660	14 525850	2722
77	39 41254 036096	40685 137510	14 528572	2723
76	39 00568 898586	40699 666082	14 531295	2725
65 75	38 59869 232504	40714 197377	14 534020	2727
74	38 19155 035127	40728 731397	14 536747	2727
73	37 78426 303730	40743 268144	14 539474	2730
72	37 37683 035586	40757 807618	14 542204	2729
71	36 96925 227968	40772 349822	14 544933	2735
65 70	36 56152 878146	40786 894755	14 547668	2731
69	36 15365 983391	40801 442423	14 550399	2738
68	35 74564 540968	40815 992822	14 553137	2734
67	35 33748 548146	40830 545959	14 555871	2740
66	34 92918 002187	40845 101830	14 558611	2738
65 65	34 52072 900357	40859 660441	14 561349	2743
64	34 11213 239916	40874 221790	14 564092	2742
63	33 70339 018126	40888 785882	14 566834	2744
62	33 29450 232244	40903 352716	14 569578	2746
61	32 88546 879528	40917 922294	14 572324	2746
65 60	32 47628 957234	40932 494618	14 575070	2751
	9.93			

## Log Sines

c		log. sin.	$\Delta^1$	$\Delta^2$	$\Delta^3$
		9.93			
65	60	32 47628 957234	40932 494618	14 575070	2751
	59	32 06696 462616	40947 069688	14 577821	2747
	58	31 65749 392928	40961 647509	14 580568	2755
	57	31 24787 745419	40976 228077	14 583323	2750
	56	30 83811 517342	40990 811400	14 586073	2757
65	55	30 42820 705942	41005 397473	14 588830	2756
	54	30 01815 308469	41019 986303	14 591586	2756
	53	29 60795 322166	41034 577889	14 594342	2760
	52	29 19760 744277	41049 172231	14 597102	2761
	51	28 78711 572046	41063 769333	14 599863	2762
65	50	28 37647 802713	41078 369196	14 602625	2764
	49	27 96569 433517	41092 971821	14 605389	2764
	48	27 55476 461696	41107 577210	14 608153	2768
	47	27 14368 884486	41122 185363	14 610921	2767
	46	26 73246 699123	41136 796284	14 613688	2771
65	45	26 32109 902839	41151 409972	14 616459	2770
	44	25 90958 492867	41166 026431	14 619229	2773
	43	25 49792 466436	41180 645660	14 622002	2775
	42	25 08611 820776	41195 267662	14 624777	2775
	41	24 67416 553114	41209 892439	14 627552	2777
65	40	24 26206 660675	41224 519991	14 630329	2780
	39	23 84982 140684	41239 150320	14 633109	2779
	38	23 43742 990364	41253 783429	14 635888	2782
	37	23 02489 206935	41268 419317	14 638670	2784
	36	22 61220 787618	41283 057987	14 641454	2784
65	35	22 19937 729631	41297 699441	14 644238	2787
	34	21 78640 030190	41312 343679	14 647025	2788
	33	21 37327 686511	41326 990704	14 649813	2788
	32	20 96000 695807	41341 640517	14 652601	2792
	31	20 54659 055290	41356 293118	14 655393	2792
65	30	20 13302 762172	41370 948511	14 658185	2795
	29	19 71931 813661	41385 606696	14 660980	2794
	28	19 30546 206965	41400 267676	14 663774	2798
	27	18 89145 939289	41414 931450	14 666572	2798
	26	18 47731 007839	41429 598022	14 669370	2800
65	25	18 06301 409817	41444 267392	14 672170	2802
	24	17 64857 142425	41458 939562	14 674972	2802
	23	17 23398 202863	41473 614534	14 677774	2806
	22	16 81924 588329	41488 292308	14 680580	2806
	21	16 40436 296021	41502 972888	14 683386	2806
65	20	15 98933 323133	41517 656274	14 686192	2812
		9.93			

## Log Sines

c		log. sin.	$\Delta^1$	$\Delta^2$	$\Delta^3$
		9.93			
65	20	15 98933 323133	41517 656274	14 686192	2812
	19	15 57415 666859	41532 342466	14 689004	2808
	18	15 15883 324393	41547 031470	14 691812	2814
	17	14 74336 292923	41561 723282	14 694626	2813
	16	14 32774 569641	41576 417908	14 697439	2815
65	15	13 91198 151733	41591 115347	14 700254	2818
	14	13 49607 036386	41605 815601	14 703072	2818
	13	13 08001 220785	41620 518673	14 705890	2819
	12	12 66380 702112	41635 224563	14 708709	2823
	11	12 24745 477549	41649 933272	14 711532	2822
65	10	11 83095 544277	41664 644804	14 714354	2825
	09	11 41430 899473	41679 359158	14 717179	2826
	08	10 99751 540315	41694 076337	14 720005	2827
	07	10 58057 463978	41708 796342	14 722832	2830
	06	10 16348 667636	41723 519174	14 725662	2830
65	05	09 74625 148462	41738 244836	14 728492	2833
	04	09 32886 903626	41752 973328	14 731325	2833
	03	08 91133 930298	41767 704653	14 734158	2837
	02	08 49366 225645	41782 438811	14 736995	2835
	01	08 07583 786834	41797 175806	14 739830	2839
65	00	07 65786 611028	41811 915636	14 742669	2840
64	99	07 23974 695392	41826 658305	14 745509	2842
	98	06 82148 037087	41841 403814	14 748351	2843
	97	06 40306 633273	41856 152165	14 751194	2844
	96	05 98450 481108	41870 903359	14 754038	2847
64	95	05 56579 577749	41885 657397	14 756885	2847
	94	05 14693 920352	41900 414282	14 759732	2850
	93	04 72793 506070	41915 174014	14 762582	2850
	92	04 30878 332056	41929 936596	14 765432	2853
	91	03 88948 395460	41944 702028	14 768285	2854
64	90	03 47003 693432	41959 470313	14 771139	2856
	89	03 05044 223119	41974 241452	14 773995	2856
	88	02 63069 981667	41989 015447	14 776851	2859
	87	02 21080 966220	42003 792298	14 779710	2860
	86	01 79077 173922	42018 572008	14 782570	2862
64	85	01 37058 601914	42033 354578	14 785432	2864
	84	00 95025 247336	42048 140010	14 788296	2863
	83	00 52977 107326	42062 928306	14 791159	2869
	82	00 10914 179020	42077 719465	14 794028	2866
	81	99 68836 459555	42092 513493	14 796894	2870
64	80	99 26743 946062	42107 310387	14 799764	2872
		9.92			

## Log Sines

c		log. sin.		$\Delta^1$		$\Delta^2$		$\Delta^3$
		9.92						
64	80	99	26743 946062	42107	310387	14	799764	2872
	79	98	84636 635675	42122	110151	14	802636	2871
	78	98	42514 525524	42136	912787	14	805507	2876
	77	98	00377 612737	42151	718294	14	808383	2875
	76	97	58225 894443	42166	526677	14	811258	2877
64	75	97	16059 367766	42181	337935	14	814135	2880
	74	96	73878 029831	42196	152070	14	817015	2880
	73	96	31681 877761	42210	969085	14	819895	2883
	72	95	89470 908676	42225	788980	14	822778	2881
	71	95	47245 119696	42240	611758	14	825659	2889
64	70	95	05004 507938	42255	437417	14	828548	2883
	69	94	62749 070521	42270	265965	14	831431	2892
	68	94	20478 804556	42285	097396	14	834323	2887
	67	93	78193 707160	42299	931719	14	837210	2894
	66	93	35893 775441	42314	768929	14	840104	2891
64	65	92	93579 006512	42329	609033	14	842995	2896
	64	92	51249 397479	42344	452028	14	845891	2896
	63	92	08904 945451	42359	297919	14	848787	2898
	62	91	66545 647532	42374	146706	14	851685	2900
	61	91	24171 500826	42388	998391	14	854585	2900
64	60	90	81782 502435	42403	852976	14	857485	2902
	59	90	39378 649459	42418	710461	14	860387	2906
	58	89	96959 938998	42433	570848	14	863293	2906
	57	89	54526 368150	42448	434141	14	866199	2905
	56	89	12077 934009	42463	300340	14	869104	2911
64	55	88	69614 633669	42478	169444	14	872015	2910
	54	88	27136 464225	42493	041459	14	874925	2911
	53	87	84643 422766	42507	916384	14	877836	2916
	52	87	42135 506382	42522	794220	14	880752	2914
	51	86	99612 712162	42537	674972	14	883666	2916
64	50	86	57075 037190	42552	558638	14	886582	2921
	49	86	14522 478552	42567	445220	14	889503	2918
	48	85	71955 033332	42582	334723	14	892421	2922
	47	85	29372 698609	42597	227144	14	895343	2924
	46	84	86775 471465	42612	122487	14	898267	2924
64	45	84	44163 348978	42627	020754	14	901191	2928
	44	84	01536 328224	42641	921945	14	904119	2926
	43	83	58894 406279	42656	826064	14	907045	2932
	42	83	16237 580215	42671	733109	14	909977	2929
	41	82	73565 847106	42686	643086	14	912906	2934
64	40	82	30879 204020	42701	555992	14	915840	2935
		9.92						



## Log Sines

c	log. sin.	$\Delta^1$	$\Delta^2$	$\Delta^3$
	9.92			
64 40	82 30879 204020	42701 555992	14 915840	2935
39	81 88177 648028	42716 471832	14 918775	2935
38	81 45461 176196	42731 390607	14 921710	2938
37	81 02729 785589	42746 312317	14 924648	2940
36	80 59983 473272	42761 236965	14 927588	2940
64 35	80 17222 236307	42776 164553	14 930528	2944
34	79 74446 071754	42791 095081	14 933472	2942
33	79 31654 976673	42806 028553	14 936414	2946
32	78 88848 948120	42820 964967	14 939360	2949
31	78 46027 983153	42835 904327	14 942309	2948
64 30	78 03192 078826	42850 846636	14 945257	2950
29	77 60341 232190	42865 791893	14 948207	2953
28	77 17475 440297	42880 740100	14 951160	2954
27	76 74594 700197	42895 691260	14 954114	2954
26	76 31699 008937	42910 645374	14 957068	2958
64 25	75 88788 363563	42925 602442	14 960026	2959
24	75 45862 761121	42940 562468	14 962985	2959
23	75 02922 198653	42955 525453	14 965944	2963
22	74 59966 673200	42970 491397	14 968907	2963
21	74 16996 181803	42985 460304	14 971870	2964
64 20	73 74010 721499	43000 432174	14 974834	2969
19	73 31010 289325	43015 407008	14 977803	2967
18	72 87994 882317	43030 384811	14 980770	2970
17	72 44964 497506	43045 365581	14 983740	2972
16	72 01919 131925	43060 349321	14 986712	2972
64 15	71 58858 782604	43075 336033	14 989684	2976
14	71 15783 446571	43090 325717	14 992660	2976
13	70 72693 120854	43105 318377	14 995636	2979
12	70 29587 802477	43120 314013	14 998615	2978
11	69 86467 488464	43135 312628	15 001593	2983
64 10	69 43332 175836	43150 314221	15 004576	2982
09	69 00181 861615	43165 318797	15 007558	2984
08	68 57016 542818	43180 326355	15 010542	2988
07	68 13836 216463	43195 336897	15 013530	2987
06	67 70640 879566	43210 350427	15 016517	2988
64 05	67 27430 529139	43225 366944	15 019505	2994
04	66 84205 162195	43240 386449	15 022499	2990
03	66 40964 775746	43255 408948	15 025489	2997
02	65 97709 366798	43270 434437	15 028486	2993
01	65 54438 932361	43285 462923	15 031479	3001
64 00	65 11153 469438	43300 494402	15 034480	2996
	9.92			

## Log Sines

c	log. sin.		$\Delta^1$	$\Delta^2$	$\Delta^3$
	9.92				
64 00	65 11153	469438	43300 494402	15 034480	2996
63 99	64 67852	975036	43315 528882	15 037476	3004
	98 64 24537	446154	43330 566358	15 040480	3000
	97 63 81206	879796	43345 606838	15 043480	3006
	96 63 37861	272958	43360 650318	15 046486	3006
63 95	62 94500	622640	43375 696804	15 049492	3006
	94 62 51124	925836	43390 746296	15 052498	3010
	93 62 07734	179540	43405 798794	15 055508	3010
	92 61 64328	380746	43420 854302	15 058518	3014
	91 61 20907	526444	43435 912820	15 061532	3013
63 90	60 77471	613624	43450 974352	15 064545	3017
	89 60 34020	639272	43466 038897	15 067562	3016
	88 59 90554	600375	43481 106459	15 070578	3019
	87 59 47073	493916	43496 177037	15 073597	3021
	86 59 03577	316879	43511 250634	15 076618	3023
63 85	58 60066	066245	43526 327252	15 079641	3024
	84 58 16539	738993	43541 406893	15 082665	3025
	83 57 72998	332100	43556 489558	15 085690	3027
	82 57 29441	842542	43571 575248	15 088717	3030
	81 56 85870	267294	43586 663965	15 091747	3030
63 80	56 42283	603329	43601 755712	15 094777	3033
	79 55 98681	847617	43616 850489	15 097810	3033
	78 55 55064	997128	43631 948299	15 100843	3036
	77 55 11433	048829	43647 049142	15 103879	3037
	76 54 67785	999687	43662 153021	15 106916	3039
63 75	54 24123	846666	43677 259937	15 109955	3041
	74 53 80446	586729	43692 369892	15 112996	3042
	73 53 36754	216837	43707 482888	15 116038	3044
	72 52 93046	733949	43722 598926	15 119082	3046
	71 52 49324	135023	43737 718008	15 122128	3046
63 70	52 05586	417015	43752 840136	15 125174	3050
	69 51 61833	576879	43767 965310	15 128224	3051
	68 51 18065	611569	43783 093534	15 131275	3051
	67 50 74282	518035	43798 224809	15 134326	3054
	66 50 30484	293226	43813 359135	15 137380	3057
63 65	49 86670	934091	43828 496515	15 140437	3056
	64 49 42842	437576	43843 636952	15 143493	3059
	63 48 98998	800624	43858 780445	15 146552	3061
	62 48 55140	020179	43873 926997	15 149613	3063
	61 48 11266	093182	43889 076610	15 152676	3062
63 60	47 67377	016572	43904 229286	15 155738	3068
	9.92				

## Log Sines

c		log. sin.	$\Delta^1$	$\Delta^2$	$\Delta^3$
		9.92			
63	60	47 67377 016572	43904 229286	15 155738	3068
	59	47 23472 787286	43919 385024	15 158806	3065
	58	46 79553 402262	43934 543830	15 161871	3071
	57	46 35618 858432	43949 705701	15 164942	3070
	56	45 91669 152731	43964 870643	15 168012	3072
63	55	45 47704 282088	43980 038655	15 171084	3075
	54	45 03724 243433	43995 209739	15 174159	3074
	53	44 59729 033694	44010 383898	15 177233	3079
	52	44 15718 649796	44025 561131	15 180312	3079
	51	43 71693 088665	44040 741443	15 183391	3080
63	50	43 27652 347222	44055 924834	15 186471	3083
	49	42 83596 422388	44071 111305	15 189554	3084
	48	42 39525 311083	44086 300859	15 192638	3085
	47	41 95439 010224	44101 493497	15 195723	3090
	46	41 51337 516727	44116 689220	15 198813	3087
63	45	41 07220 827507	44131 888033	15 201900	3091
	44	40 63088 939474	44147 089933	15 204991	3094
	43	40 18941 849541	44162 294924	15 208085	3094
	42	39 74779 554617	44177 503009	15 211179	3095
	41	39 30602 051608	44192 714188	15 214274	3098
63	40	38 86409 337420	44207 928462	15 217372	3101
	39	38 42201 408958	44223 145834	15 220473	3099
	38	37 97978 263124	44238 366307	15 223572	3103
	37	37 53739 896817	44253 589879	15 226675	3106
	36	37 09486 306938	44268 816554	15 229781	3105
63	35	36 65217 490384	44284 046335	15 232886	3109
	34	36 20933 444049	44299 279221	15 235995	3108
	33	35 76634 164828	44314 515216	15 239103	3113
	32	35 32319 649612	44329 754319	15 242216	3112
	31	34 87989 895293	44344 996535	15 245328	3115
63	30	34 43644 898758	44360 241863	15 248443	3116
	29	33 99284 656895	44375 490306	15 251559	3119
	28	33 54909 166589	44390 741865	15 254678	3119
	27	33 10518 424724	44405 996543	15 257797	3122
	26	32 66112 428181	44421 254340	15 260919	3124
63	25	32 21691 173841	44436 515259	15 264043	3123
	24	31 77254 658582	44451 779302	15 267166	3129
	23	31 32802 879280	44467 046468	15 270295	3127
	22	30 88335 832812	44482 316763	15 273422	3131
	21	30 43853 516049	44497 590185	15 276553	3131
63	20	29 99355 925864	44512 866738	15 279684	3134
		9.92			

## Log Sines

c	log. sin.	$\Delta^1$	$\Delta^2$	$\Delta^3$
	9.92			
63 20	29 99355 925864	44512 866738	15 279684	3134
19	29 54843 059126	44528 146422	15 282818	3135
18	29 10314 912704	44543 429240	15 285953	3138
17	28 65771 483464	44558 715193	15 289091	3137
16	28 21212 768271	44574 004284	15 292228	3142
63 15	27 76638 763987	44589 296512	15 295370	3141
14	27 32049 467475	44604 591882	15 298511	3145
13	26 87444 875593	44619 890393	15 301656	3145
12	26 42824 985200	44635 192049	15 304801	3148
11	25 98189 793151	44650 496850	15 307949	3148
63 10	25 53539 296301	44665 804799	15 311097	3151
09	25 08873 491502	44681 115896	15 314248	3153
08	24 64192 375606	44696 430144	15 317401	3154
07	24 19495 945462	44711 747545	15 320555	3156
06	23 74784 197917	44727 068100	15 323711	3158
63 05	23 30057 129817	44742 391811	15 326869	3160
04	22 85314 738006	44757 718680	15 330029	3160
03	22 40557 019326	44773 048709	15 333189	3163
02	21 95783 970617	44788 381898	15 336352	3165
01	21 50995 588719	44803 718250	15 339517	3166
63 00	21 06191 870469	44819 057767	15 342683	3170
62 99	20 61372 812702	44834 400450	15 345853	3167
98	20 16538 412252	44849 746303	15 349020	3174
97	19 71688 665949	44865 095323	15 352194	3172
96	19 26823 570626	44880 447517	15 355366	3175
62 95	18 81943 123109	44895 802883	15 358541	3178
94	18 37047 320226	44911 161424	15 361719	3178
93	17 92136 158802	44926 523143	15 364897	3179
92	17 47209 635659	44941 888040	15 368076	3185
91	17 02267 747619	44957 256116	15 371261	3181
62 90	16 57310 491503	44972 627377	15 374442	3187
89	16 12337 864126	44988 001819	15 377629	3187
88	15 67349 862307	45003 379448	15 380816	3189
87	15 22346 482859	45018 760264	15 384005	3191
86	14 77327 722595	45034 144269	15 387196	3192
62 85	14 32293 578326	45049 531465	15 390388	3195
84	13 87244 046861	45064 921853	15 393583	3196
83	13 42179 125008	45080 315436	15 396779	3198
82	12 97098 809572	45095 712215	15 399977	3198
81	12 52003 097357	45111 112192	15 403175	3204
62 80	12 06891 985165	45126 515367	15 406379	3201
	9.92			

## Log Sines

c		log. sin.	$\Delta^1$	$\Delta^2$	$\Delta^3$
		9.92			
62	80	12 06891 985165	45126 515367	15 406379	3201
	79	11 61765 469798	45141 921746	15 409580	3206
	78	11 16623 548052	45157 331326	15 412786	3206
	77	10 71466 216726	45172 744112	15 415992	3209
	76	10 26293 472614	45188 160104	15 419201	3209
62	75	09 81105 312510	45203 579305	15 422410	3213
	74	09 35901 733205	45219 001715	15 425623	3214
	73	08 90682 731490	45234 427338	15 428837	3214
	72	08 45448 304152	45249 856175	15 432051	3218
	71	08 00198 447977	45265 288226	15 435269	3220
62	70	07 54933 159751	45280 723495	15 438489	3219
	69	07 09652 436256	45296 161984	15 441708	3223
	68	06 64356 274272	45311 603692	15 444931	3225
	67	06 19044 670580	45327 048623	15 448156	3226
	66	05 73717 621957	45342 496779	15 451382	3227
62	65	05 28375 125178	45357 948161	15 454609	3230
	64	04 83017 177017	45373 402770	15 457839	3231
	63	04 37643 774247	45388 860609	15 461070	3234
	62	03 92254 913638	45404 321679	15 464304	3235
	61	03 46850 591959	45419 785983	15 467539	3236
62	60	03 01430 805976	45435 253522	15 470775	3239
	59	02 55995 552454	45450 724297	15 474014	3240
	58	02 10544 828157	45466 198311	15 477254	3242
	57	01 65078 629846	45481 675565	15 480496	3244
	56	01 19596 954281	45497 156061	15 483740	3246
62	55	00 74099 798220	45512 639801	15 486986	3247
	54	00 28587 158419	45528 126787	15 490233	3249
	53	99 83059 031632	45543 617020	15 493482	3251
	52	99 37515 414612	45559 110502	15 496733	3253
	51	98 91956 304110	45574 607235	15 499986	3255
62	50	98 46381 696875	45590 107221	15 503241	3256
	49	98 00791 589654	45605 610462	15 506497	3258
	48	97 55185 979192	45621 116959	15 509755	3260
	47	97 09564 862233	45636 626714	15 513015	3261
	46	96 63928 235519	45652 139729	15 516276	3265
62	45	96 18276 095790	45667 656005	15 519541	3265
	44	95 72608 439785	45683 175546	15 522806	3266
	43	95 26925 264239	45698 698352	15 526072	3270
	42	94 81226 565887	45714 224424	15 529342	3270
	41	94 35512 341463	45729 753766	15 532612	3273
62	40	93 89782 587697	45745 286378	15 535885	3275
		9.91			

## Log Sines

c		log. sin.	$\Delta^1$	$\Delta^2$	$\Delta^3$
		9.91			
62	40	93 89782 587697	45745 286378	15 535885	3275
	39	93 44037 301319	45760 822263	15 539160	3275
	38	92 98276 479056	45776 361423	15 542435	3278
	37	92 52500 117633	45791 903858	15 545713	3280
	36	92 06708 213775	45807 449571	15 548993	3281
62	35	91 60900 764204	45822 998564	15 552274	3285
	34	91 15077 765640	45838 550838	15 555559	3283
	33	90 69239 214802	45854 106397	15 558842	3289
	32	90 23385 108405	45869 665239	15 562131	3287
	31	89 77515 443166	45885 227370	15 565418	3291
62	30	89 31630 215796	45900 792788	15 568709	3294
	29	88 85729 423008	45916 361497	15 572003	3292
	28	88 39813 061511	45931 933500	15 575295	3297
	27	87 93881 128011	45947 508795	15 578592	3298
	26	87 47933 619216	45963 087387	15 581890	3300
62	25	87 01970 531829	45978 669277	15 585190	3300
	24	86 55991 862552	45994 254467	15 588490	3304
	23	86 09997 608085	46009 842957	15 591794	3306
	22	85 63987 765128	46025 434751	15 595100	3307
	21	85 17962 330377	46041 029851	15 598407	3307
62	20	84 71921 300526	46056 628258	15 601714	3311
	19	84 25864 672268	46072 229972	15 605025	3314
	18	83 79792 442296	46087 834997	15 608339	3313
	17	83 33704 607299	46103 443336	15 611652	3316
	16	82 87601 163963	46119 054988	15 614968	3318
62	15	82 41482 108975	46134 669956	15 618286	3320
	14	81 95347 439019	46150 288242	15 621606	3322
	13	81 49197 150777	46165 909848	15 624928	3322
	12	81 03031 240929	46181 534776	15 628250	3326
	11	80 56849 706153	46197 163026	15 631576	3327
62	10	80 10652 543127	46212 794602	15 634903	3329
	09	79 64439 748525	46228 429505	15 638232	3331
	08	79 18211 319020	46244 067737	15 641563	3331
	07	78 71967 251283	46259 709300	15 644894	3336
	06	78 25707 541983	46275 354194	15 648230	3336
62	05	77 79432 187789	46291 002424	15 651566	3337
	04	77 33141 185365	46306 653990	15 654903	3341
	03	76 86834 531375	46322 308893	15 658244	3341
	02	76 40512 222482	46337 967137	15 661585	3344
	01	75 94174 255345	46353 628722	15 664929	3346
62	00	75 47820 626623	46369 293651	15 668275	3346
		9.91			

## Log Sines

c	log. sin.	$\Delta^1$	$\Delta^2$	$\Delta^3$
	9.91			
62 00	75 47820 626623	46369 293651	15 668275	3346
61 99	75 01451 332972	46384 961926	15 671621	3349
98	74 55066 371046	46400 633547	15 674970	3353
97	74 08665 737499	46416 308517	15 678323	3351
96	73 62249 428982	46431 986840	15 681674	3355
61 95	73 15817 442142	46447 668514	15 685029	3357
94	72 69369 773628	46463 353543	15 688386	3357
93	72 22906 420085	46479 041929	15 691743	3362
92	71 76427 378156	46494 733672	15 695105	3362
91	71 29932 644484	46510 428777	15 698467	3362
61 90	70 83422 215707	46526 127244	15 701829	3368
89	70 36896 088463	46541 829073	15 705197	3366
88	69 90354 259390	46557 534270	15 708563	3370
87	69 43796 725120	46573 242833	15 711933	3372
86	68 97223 482287	46588 954766	15 715305	3373
61 85	68 50634 527521	46604 670071	15 718678	3374
84	68 04029 857450	46620 388749	15 722052	3378
83	67 57409 468701	46636 110801	15 725430	3379
82	67 10773 357900	46651 836231	15 728809	3380
81	66 64121 521669	46667 565040	15 732189	3383
61 80	66 17453 956629	46683 297229	15 735572	3384
79	65 70770 659400	46699 032801	15 738956	3386
78	65 24071 626599	46714 771757	15 742342	3389
77	64 77356 854842	46730 514099	15 745731	3390
76	64 30626 340743	46746 259830	15 749121	3391
61 75	63 83880 080913	46762 008951	15 752512	3394
74	63 37118 071962	46777 761463	15 755906	3397
73	62 90340 310499	46793 517369	15 759303	3396
72	62 43546 793130	46809 276672	15 762699	3399
71	61 96737 516458	46825 039371	15 766098	3403
61 70	61 49912 477087	46840 805469	15 769501	3402
69	61 03071 671618	46856 574970	15 772903	3405
68	60 56215 096648	46872 347873	15 776308	3408
67	60 09342 748775	46888 124181	15 779716	3407
66	59 62454 624594	46903 903897	15 783123	3412
61 65	59 15550 720697	46919 687020	15 786535	3413
64	58 68631 033677	46935 473555	15 789948	3413
63	58 21695 560122	46951 263503	15 793361	3417
62	57 74744 296619	46967 056864	15 796778	3418
61	57 27777 239755	46982 853642	15 800196	3421
61 60	56 80794 386113	46998 653838	15 803617	3421
	9.91			

## Log Sines

c		log. sin.		$\Delta^1$		$\Delta^2$		$\Delta^3$
		9.91						
61	60	56	80794 386113	46998	653838	15	803617	3421
	59	56	33795 732275	47014	457455	15	807038	3424
	58	55	86781 274820	47030	264493	15	810462	3426
	57	55	39751 010327	47046	074955	15	813888	3428
	56	54	92704 935372	47061	888843	15	817316	3430
61	55	54	45643 046529	47077	706159	15	820746	3430
	54	53	98565 340370	47093	526905	15	824176	3434
	53	53	51471 813465	47109	351081	15	827610	3436
	52	53	04362 462384	47125	178691	15	831046	3436
	51	52	57237 283693	47141	009737	15	834482	3440
61	50	52	10096 273956	47156	844219	15	837922	3441
	49	51	62939 429737	47172	682141	15	841363	3442
	48	51	15766 747596	47188	523504	15	844805	3445
	47	50	68578 224092	47204	368309	15	848250	3448
	46	50	21373 855783	47220	216559	15	851698	3447
61	45	49	74153 639224	47236	068257	15	855145	3451
	44	49	26917 570967	47251	923402	15	858596	3453
	43	48	79665 647565	47267	781998	15	862049	3453
	42	48	32397 865567	47283	644047	15	865502	3458
	41	47	85114 221520	47299	509549	15	868960	3457
61	40	47	37814 711971	47315	378509	15	872417	3460
	39	46	90499 333462	47331	250926	15	875877	3462
	38	46	43168 082536	47347	126803	15	879339	3465
	37	45	95820 955733	47363	006142	15	882804	3464
	36	45	48457 949591	47378	888946	15	886268	3470
61	35	45	01079 060645	47394	775214	15	889738	3467
	34	44	53684 285431	47410	664952	15	893205	3474
	33	44	06273 620479	47426	558157	15	896679	3472
	32	43	58847 062322	47442	454836	15	900151	3476
	31	43	11404 607486	47458	354987	15	903627	3477
61	30	42	63946 252499	47474	258614	15	907104	3479
	29	42	16471 993885	47490	165718	15	910583	3483
	28	41	68981 828167	47506	076301	15	914066	3480
	27	41	21475 751866	47521	990367	15	917546	3488
	26	40	73953 761499	47537	907913	15	921034	3486
61	25	40	26415 853586	47553	828947	15	924520	3488
	24	39	78862 024639	47569	753467	15	928008	3492
	23	39	31292 271172	47585	681475	15	931500	3492
	22	38	83706 589697	47601	612975	15	934992	3496
	21	38	36104 976722	47617	547967	15	938488	3495
61	20	37	88487 428755	47633	486455	15	941983	3499
		9.91						



## Log Sines

c		log. sin.	$\Delta^1$	$\Delta^2$	$\Delta^3$
		9.91			
61	20	37 88487 428755	47633 486455	15 941983	3499
	19	37 40853 942300	47649 428438	15 945482	3502
	18	36 93204 513862	47665 373920	15 948984	3500
	17	36 45539 139942	47681 322904	15 952484	3507
	16	35 97857 817038	47697 275388	15 955991	3504
61	15	35 50160 541650	47713 231379	15 959495	3510
	14	35 02447 310271	47729 190874	15 963005	3510
	13	34 54718 119397	47745 153879	15 966515	3511
	12	34 06972 965518	47761 120394	15 970026	3516
	11	33 59211 845124	47777 090420	15 973542	3514
61	10	33 11434 754704	47793 063962	15 977056	3520
	09	32 63641 690742	47809 041018	15 980576	3519
	08	32 15832 649724	47825 021594	15 984095	3521
	07	31 68007 628130	47841 005689	15 987616	3526
	06	31 20166 622441	47856 993305	15 991142	3524
61	05	30 72309 629136	47872 984447	15 994666	3529
	04	30 24436 644689	47888 979113	15 998195	3529
	03	29 76547 665576	47904 977308	16 001724	3533
	02	29 28642 688268	47920 979032	16 005257	3532
	01	28 80721 709236	47936 984289	16 008789	3536
61	00	28 32784 724947	47952 993078	16 012325	3539
60	99	27 84831 731869	47969 005403	16 015864	3538
	98	27 36862 726466	47985 021267	16 019402	3542
	97	26 88877 705199	48001 040669	16 022944	3543
	96	26 40876 664530	48017 063613	16 026487	3547
60	95	25 92859 600917	48033 090100	16 030034	3546
	94	25 44826 510817	48049 120134	16 033580	3550
	93	24 96777 390683	48065 153714	16 037130	3551
	92	24 48712 236969	48081 190844	16 040681	3553
	91	24 00631 046125	48097 231525	16 044234	3557
60	90	23 52533 814600	48113 275759	16 047791	3555
	89	23 04420 538841	48129 323550	16 051346	3561
	88	22 56291 215291	48145 374896	16 054907	3561
	87	22 08145 840395	48161 429803	16 058468	3563
	86	21 59984 410592	48177 488271	16 062031	3564
60	85	21 11806 922321	48193 550302	16 065595	3569
	84	20 63613 372019	48209 615897	16 069164	3568
	83	20 15403 756122	48225 685061	16 072732	3572
	82	19 67178 071061	48241 757793	16 076304	3572
	81	19 18936 313268	48257 834097	16 079876	3576
60	80	18 70678 479171	48273 913973	16 083452	3577
		9.91			

## Log Sines

c		log. sin.		$\Delta^1$		$\Delta^2$		$\Delta^3$
		9.91						
60	80	18	70678 479171	48273	913973	16	083452	3577
	79	18	22404 565198	48289	997425	16	087029	3579
	78	17	74114 567773	48306	084454	16	090608	3581
	77	17	25808 483319	48322	175062	16	094189	3583
	76	16	77486 308257	48338	269251	16	097772	3585
60	75	16	29148 039006	48354	367023	16	101357	3588
	74	15	80793 671983	48370	468380	16	104945	3587
	73	15	32423 203603	48386	573325	16	108532	3593
	72	14	84036 630278	48402	681857	16	112125	3592
	71	14	35633 948421	48418	793982	16	115717	3595
60	70	13	87215 154439	48434	909699	16	119312	3597
	69	13	38780 244740	48451	029011	16	122909	3600
	68	12	90329 215729	48467	151920	16	126509	3601
	67	12	41862 063809	48483	278429	16	130110	3601
	66	11	93378 785380	48499	408539	16	133711	3608
60	65	11	44879 376841	48515	542250	16	137319	3604
	64	10	96363 834591	48531	679569	16	140923	3611
	63	10	47832 155022	48547	820492	16	144534	3611
	62	09	99284 334530	48563	965026	16	148145	3612
	61	09	50720 369504	48580	113171	16	151757	3617
60	60	09	02140 256333	48596	264928	16	155374	3614
	59	08	53543 991405	48612	420302	16	158988	3622
	58	08	04931 571103	48628	579290	16	162610	3620
	57	07	56302 991813	48644	741900	16	166230	3623
	56	07	07658 249913	48660	908130	16	169853	3625
60	55	06	58997 341783	48677	077983	16	173478	3628
	54	06	10320 263800	48693	251461	16	177106	3628
	53	05	61627 012339	48709	428567	16	180734	3632
	52	05	12917 583772	48725	609301	16	184366	3633
	51	04	64191 974471	48741	793667	16	187999	3635
60	50	04	15450 180804	48757	981666	16	191634	3638
	49	03	66692 199138	48774	173300	16	195272	3639
	48	03	17918 025838	48790	368572	16	198911	3641
	47	02	69127 657266	48806	567483	16	202552	3643
	46	02	20321 089783	48822	770035	16	206195	3646
60	45	01	71498 319748	48838	976230	16	209841	3647
	44	01	22659 343518	48855	186071	16	213488	3650
	43	00	73804 157447	48871	399559	16	217138	3652
	42	00	24932 757888	48887	616697	16	220790	3652
	41	99	76045 141191	48903	837487	16	224442	3656
60	40	99	27141 303704	48920	061929	16	228098	3658
		9.90						

## Log Sines

c		log. sin.		$\Delta^1$		$\Delta^2$		$\Delta^3$
		9.90						
60	40	99	27141 303704	48920	061929	16	228098	3658
	39	98	78221 241775	48936	290027	16	231756	3659
	38	98	29284 951748	48952	521783	16	235415	3663
	37	97	80332 429965	48968	757198	16	239078	3662
	36	97	31363 672767	48984	996276	16	242740	3666
60	35	96	82378 676491	49001	239016	16	246406	3669
	34	96	33377 437475	49017	485422	16	250075	3669
	33	95	84359 952053	49033	735497	16	253744	3672
	32	95	35326 216556	49049	989241	16	257416	3674
	31	94	86276 227315	49066	246657	16	261090	3676
60	30	94	37209 980658	49082	507747	16	264766	3677
	29	93	88127 472911	49098	772513	16	268443	3682
	28	93	39028 700398	49115	040956	16	272125	3680
	27	92	89913 659442	49131	313081	16	275805	3686
	26	92	40782 346361	49147	588886	16	279491	3685
60	25	91	91634 757475	49163	868377	16	283176	3688
	24	91	42470 889098	49180	151553	16	286864	3692
	23	90	93290 737545	49196	438417	16	290556	3691
	22	90	44094 299128	49212	728973	16	294247	3695
	21	89	94881 570155	49229	023220	16	297942	3697
60	20	89	45652 546935	49245	321162	16	301639	3697
	19	88	96407 225773	49261	622801	16	305336	3702
	18	88	47145 602972	49277	928137	16	309038	3703
	17	87	97867 674835	49294	237175	16	312741	3703
	16	87	48573 437660	49310	549916	16	316444	3709
60	15	86	99262 887744	49326	866360	16	320153	3707
	14	86	49936 021384	49343	186513	16	323860	3712
	13	86	00592 834871	49359	510373	16	327572	3713
	12	85	51233 324498	49375	837945	16	331285	3715
	11	85	01857 486553	49392	169230	16	335000	3718
60	10	84	52465 317323	49408	504230	16	338718	3717
	09	84	03056 813093	49424	842948	16	342435	3724
	08	83	53631 970145	49441	185383	16	346159	3722
	07	83	04190 784762	49457	531542	16	349881	3726
	06	82	54733 253220	49473	881423	16	353607	3727
60	05	82	05259 371797	49490	235030	16	357334	3730
	04	81	55769 136767	49506	592364	16	361064	3732
	03	81	06262 544403	49522	953428	16	364796	3733
	02	80	56739 590975	49539	318224	16	368529	3738
	01	80	07200 272751	49555	686753	16	372267	3735
60	00	79	57644 585998	49572	059020	16	376002	3743
		9.90						

## Log Sines

c	log. sin.	$\Delta^1$	$\Delta^2$	$\Delta^3$
	9.90			
60 00	79 57644 585998	49572 059020	16 376002	3743
59 99	79 08072 526978	49588 435022	16 379745	3740
98	78 58484 091956	49604 814767	16 383485	3746
97	78 08879 277189	49621 198252	16 387231	3745
96	77 59258 078937	49637 585483	16 390976	3749
59 95	77 09620 493454	49653 976459	16 394725	3751
94	76 59966 516995	49670 371184	16 398476	3751
93	76 10296 145811	49686 769660	16 402227	3757
92	75 60609 376151	49703 171887	16 405984	3756
91	75 10906 204264	49719 577871	16 409740	3759
59 90	74 61186 626393	49735 987611	16 413499	3760
89	74 11450 638782	49752 401110	16 417259	3765
88	73 61698 237672	49768 818369	16 421024	3764
87	73 11929 419303	49785 239393	16 424788	3768
86	72 62144 179910	49801 664181	16 428556	3769
59 85	72 12342 515729	49818 092737	16 432325	3771
84	71 62524 422992	49834 525062	16 436096	3775
83	71 12689 897930	49850 961158	16 439871	3776
82	70 62838 936772	49867 401029	16 443647	3777
81	70 12971 535743	49883 844676	16 447424	3780
59 80	69 63087 691067	49900 292100	16 451204	3782
79	69 13187 398967	49916 743304	16 454986	3785
78	68 63270 655663	49933 198290	16 458771	3787
77	68 13337 457373	49949 657061	16 462558	3786
76	67 63387 800312	49966 119619	16 466344	3794
59 75	67 13421 680693	49982 585963	16 470138	3790
74	66 63439 094730	49999 056101	16 473928	3796
73	66 13440 038629	50015 530029	16 477724	3797
72	65 63424 508600	50032 007753	16 481521	3799
71	65 13392 500847	50048 489274	16 485320	3801
59 70	64 63344 011573	50064 974594	16 489121	3804
69	64 13279 036979	50081 463715	16 492925	3805
68	63 63197 573264	50097 956640	16 496730	3807
67	63 13099 616624	50114 453370	16 500537	3812
66	62 62985 163254	50130 953907	16 504349	3810
59 65	62 12854 209347	50147 458256	16 508159	3814
64	61 62706 751091	50163 966415	16 511973	3817
63	61 12542 784676	50180 478388	16 515790	3819
62	60 62362 306288	50196 994178	16 519609	3818
61	60 12165 312110	50213 513787	16 523427	3825
59 60	59 61951 798323	50230 037214	16 527252	3824
	9.90			

## Log Sines

c		log. sin.	$\Delta^1$	$\Delta^2$	$\Delta^3$
		9.90			
59	60	59 61951 798323	50230 037214	16 527252	3824
	59	59 11721 761109	50246 564466	16 531076	3827
	58	58 61475 196643	50263 095542	16 534903	3828
	57	58 11212 101101	50279 630445	16 538731	3833
	56	57 60932 470656	50296 169176	16 542564	3831
59	55	57 10636 301480	50312 711740	16 546395	3838
	54	56 60323 589740	50329 258135	16 550233	3836
	53	56 09994 331605	50345 808368	16 554069	3840
	52	55 59648 523237	50362 362437	16 557909	3843
	51	55 09286 160800	50378 920346	16 561752	3843
59	50	54 58907 240454	50395 482098	16 565595	3846
	49	54 08511 758356	50412 047693	16 569441	3849
	48	53 58099 710663	50428 617134	16 573290	3851
	47	53 07671 093529	50445 190424	16 577141	3852
	46	52 57225 903105	50461 767565	16 580993	3855
59	45	52 06764 135540	50478 348558	16 584848	3857
	44	51 56285 786982	50494 933406	16 588705	3860
	43	51 05790 853576	50511 522111	16 592565	3860
	42	50 55279 331465	50528 114676	16 596425	3865
	41	50 04751 216789	50544 711101	16 600290	3864
59	40	49 54206 505688	50561 311391	16 604154	3870
	39	49 03645 194297	50577 915545	16 608024	3869
	38	48 53067 278752	50594 523569	16 611893	3872
	37	48 02472 755183	50611 135462	16 615765	3874
	36	47 51861 619721	50627 751227	16 619639	3878
59	35	47 01233 868494	50644 370866	16 623517	3877
	34	46 50589 497628	50660 994383	16 627394	3883
	33	45 99928 503245	50677 621777	16 631277	3881
	32	45 49250 881468	50694 253054	16 635158	3887
	31	44 98556 628414	50710 888212	16 639045	3887
59	30	44 47845 740202	50727 527257	16 642932	3889
	29	43 97118 212945	50744 170189	16 646821	3892
	28	43 46374 042756	50760 817010	16 650713	3895
	27	42 95613 225746	50777 467723	16 654608	3896
	26	42 44835 758023	50794 122331	16 658504	3897
59	25	41 94041 635692	50810 780835	16 662401	3902
	24	41 43230 854857	50827 443236	16 666303	3903
	23	40 92403 411621	50844 109539	16 670206	3904
	22	40 41559 302082	50860 779745	16 674110	3907
	21	39 90698 522337	50877 453855	16 678017	3911
59	20	39 39821 068482	50894 131872	16 681928	3910
		9.90			

## Log Sines

c	log. sin.	$\Delta^1$	$\Delta^2$	$\Delta^3$
	9.90			
59 20	39 39821 068482	50894 131872	16 681928	3910
19	38 88926 936610	50910 813800	16 685838	3914
18	38 38016 122810	50927 499638	16 689752	3917
17	37 87088 623172	50944 189390	16 693669	3917
16	37 36144 433782	50960 883059	16 697586	3922
59 15	36 85183 550723	50977 580645	16 701508	3920
14	36 34205 970078	50994 282153	16 705428	3927
13	35 83211 687925	51010 987581	16 709355	3927
12	35 32200 700344	51027 696936	16 713282	3928
11	34 81173 003408	51044 410218	16 717210	3932
59 10	34 30128 593190	51061 127428	16 721142	3934
09	33 79067 465762	51077 848570	16 725076	3935
08	33 27989 617192	51094 573646	16 729011	3939
07	32 76895 043546	51111 302657	16 732950	3940
06	32 25783 740889	51128 035607	16 736890	3942
59 05	31 74655 705282	51144 772497	16 740832	3945
04	31 23510 932785	51161 513329	16 744777	3947
03	30 72349 419456	51178 258106	16 748724	3950
02	30 21171 161350	51195 006830	16 752674	3950
01	29 69976 154520	51211 759504	16 756624	3954
59 00	29 18764 395016	51228 516128	16 760578	3957
58 99	28 67535 878888	51245 276706	16 764535	3957
98	28 16290 602182	51262 041241	16 768492	3960
97	27 65028 560941	51278 809733	16 772452	3963
96	27 13749 751208	51295 582185	16 776415	3966
58 95	26 62454 169023	51312 358600	16 780381	3964
94	26 11141 810423	51329 138981	16 784345	3972
93	25 59812 671442	51345 923326	16 788317	3971
92	25 08466 748116	51362 711643	16 792288	3973
91	24 57104 036473	51379 503931	16 796261	3976
58 90	24 05724 532542	51396 300192	16 800237	3978
89	23 54328 232350	51413 100429	16 804215	3981
88	23 02915 131921	51429 904644	16 808196	3983
87	22 51485 227277	51446 712840	16 812179	3984
86	22 00038 514437	51463 525019	16 816163	3988
58 85	21 48574 989418	51480 341182	16 820151	3989
84	20 97094 648236	51497 161333	16 824140	3992
83	20 45597 486903	51513 985473	16 828132	3993
82	19 94083 501430	51530 813605	16 832125	3997
81	19 42552 687825	51547 645730	16 836122	3999
58 80	18 91005 042095	51564 481852	16 840121	3999
	9.90			

## Log Sines

c		log. sin.		$\Delta^1$	$\Delta^2$	$\Delta^3$
		9.90				
58	80	18	91005 042095	51564 481852	16 840121	3999
	79	18	39440 560243	51581 321973	16 844120	4005
	78	17	87859 238270	51598 166093	16 848125	4003
	77	17	36261 072177	51615 014218	16 852128	4009
	76	16	84646 057959	51631 866346	16 856137	4010
58	75	16	33014 191613	51648 722483	16 860147	4010
	74	15	81365 469130	51665 582630	16 864157	4017
	73	15	29699 886500	51682 446787	16 868174	4014
	72	14	78017 439713	51699 314961	16 872188	4020
	71	14	26318 124752	51716 187149	16 876208	4021
58	70	13	74601 937603	51733 063357	16 880229	4024
	69	13	22868 874246	51749 943586	16 884253	4024
	68	12	71118 930660	51766 827839	16 888277	4029
	67	12	19352 102821	51783 716116	16 892306	4030
	66	11	67568 386705	51800 608422	16 896336	4032
58	65	11	15767 778283	51817 504758	16 900368	4036
	64	10	63950 273525	51834 405126	16 904404	4035
	63	10	12115 868399	51851 309530	16 908439	4041
	62	09	60264 558869	51868 217969	16 912480	4040
	61	09	08396 340900	51885 130449	16 916520	4045
58	60	08	56511 210451	51902 046969	16 920565	4046
	59	08	04609 163482	51918 967534	16 924611	4048
	58	07	52690 195948	51935 892145	16 928659	4051
	57	07	00754 303803	51952 820804	16 932710	4053
	56	06	48801 482999	51969 753514	16 936763	4055
58	55	05	96831 729485	51986 690277	16 940818	4057
	54	05	44845 039208	52003 631095	16 944875	4062
	53	04	92841 408113	52020 575970	16 948937	4060
	52	04	40820 832143	52037 524907	16 952997	4065
	51	03	88783 307236	52054 477904	16 957062	4067
58	50	03	36728 829332	52071 434966	16 961129	4069
	49	02	84657 394366	52088 396095	16 965198	4071
	48	02	32568 998271	52105 361293	16 969269	4074
	47	01	80463 636978	52122 330562	16 973343	4077
	46	01	28341 306416	52139 303905	16 977420	4076
58	45	00	76202 002511	52156 281325	16 981496	4083
	44	00	24045 721186	52173 262821	16 985579	4081
	43	99	71872 458365	52190 248400	16 989660	4086
	42	99	19682 209965	52207 238060	16 993746	4087
	41	98	67474 971905	52224 231806	16 997833	4091
58	40	98	15250 740099	52241 229639	17 001924	4091
		9.89				

## Log Sines

c	log. sin.	$\Delta^1$	$\Delta^2$	$\Delta^3$
	9.89			
58 40	98 15250 740099	52241 229639	17 001924	4091
39	97 63009 510460	52258 231563	17 006015	4095
38	97 10751 278897	52275 237578	17 010110	4096
37	96 58476 041319	52292 247688	17 014206	4101
36	96 06183 793631	52309 261894	17 018307	4099
58 35	95 53874 531737	52326 280201	17 022406	4105
34	95 01548 251536	52343 302607	17 026511	4106
33	94 49204 948929	52360 329118	17 030617	4109
32	93 96844 619811	52377 359735	17 034726	4110
31	93 44467 260076	52394 394461	17 038836	4112
58 30	92 92072 865615	52411 433297	17 042948	4118
29	92 39661 432318	52428 476245	17 047066	4115
28	91 87232 956073	52445 523311	17 051181	4122
27	91 34787 432762	52462 574492	17 055303	4121
26	90 82324 858270	52479 629795	17 059424	4126
58 25	90 29845 228475	52496 689219	17 063550	4126
24	89 77348 539256	52513 752769	17 067676	4130
23	89 24834 786487	52530 820445	17 071806	4132
22	88 72303 966042	52547 892251	17 075938	4133
21	88 19756 073791	52564 968189	17 080071	4137
58 20	87 67191 105602	52582 048260	17 084208	4140
19	87 14609 057342	52599 132468	17 088348	4139
18	86 62009 924874	52616 220816	17 092487	4144
17	86 09393 704058	52633 313303	17 096631	4147
16	85 56760 390755	52650 409934	17 100778	4147
58 15	85 04109 980821	52667 510712	17 104925	4152
14	84 51442 470109	52684 615637	17 109077	4151
13	83 98757 854472	52701 724714	17 113228	4156
12	83 46056 129758	52718 837942	17 117384	4158
11	82 93337 291816	52735 955326	17 121542	4159
58 10	82 40601 336490	52753 076868	17 125701	4164
09	81 87848 259622	52770 202569	17 129865	4163
08	81 35078 057053	52787 332434	17 134028	4168
07	80 82290 724619	52804 466462	17 138196	4169
06	80 29486 258157	52821 604658	17 142365	4171
58 05	79 76664 653499	52838 747023	17 146536	4176
04	79 23825 906476	52855 893559	17 150712	4176
03	78 70970 012917	52873 044271	17 154888	4178
02	78 18096 968646	52890 199159	17 159066	4182
01	77 65206 769487	52907 358225	17 163248	4183
58 00	77 12299 411262	52924 521473	17 167431	4186
	9.89			



## Log Sines

c	log. sin.	$\Delta^1$	$\Delta^2$	$\Delta^3$
	9.89			
58 00	77 12299 411262	52924 521473	17 167431	4186
57 99	76 59374 889789	52941 688904	17 171617	4190
98	76 06433 200885	52958 860521	17 175807	4189
97	75 53474 340364	52976 036328	17 179996	4193
96	75 00498 304036	52993 216324	17 184189	4197
57 95	74 47505 087712	53010 400513	17 188386	4198
94	73 94494 687199	53027 588899	17 192584	4199
93	73 41467 098300	53044 781483	17 196783	4203
92	72 88422 316817	53061 978266	17 200986	4206
91	72 35360 338551	53079 179252	17 205192	4206
57 90	71 82281 159299	53096 384444	17 209398	4211
89	71 29184 774855	53113 593842	17 213609	4213
88	70 76071 181013	53130 807451	17 217822	4213
87	70 22940 373562	53148 025273	17 222035	4217
86	69 69792 348289	53165 247308	17 226252	4222
57 85	69 16627 100981	53182 473560	17 230474	4219
84	68 63444 627421	53199 704034	17 234693	4225
83	68 10244 923387	53216 938727	17 238918	4228
82	67 57027 984660	53234 177645	17 243146	4228
81	67 03793 807015	53251 420791	17 247374	4232
57 80	66 50542 386224	53268 668165	17 251606	4233
79	65 97273 718059	53285 919771	17 255839	4237
78	65 43987 798288	53303 175610	17 260076	4239
77	64 90684 622678	53320 435686	17 264315	4240
76	64 37364 186992	53337 700001	17 268555	4245
57 75	63 84026 486991	53354 968556	17 272800	4245
74	63 30671 518435	53372 241356	17 277045	4249
73	62 77299 277079	53389 518401	17 281294	4250
72	62 23909 758678	53406 799695	17 285544	4254
71	61 70502 958983	53424 085239	17 289798	4256
57 70	61 17078 873744	53441 375037	17 294054	4257
69	60 63637 498707	53458 669091	17 298311	4261
68	60 10178 829616	53475 967402	17 302572	4263
67	59 56702 862214	53493 269974	17 306835	4265
66	59 03209 592240	53510 576809	17 311100	4268
57 65	58 49699 015431	53527 887909	17 315368	4270
64	57 96171 127522	53545 203277	17 319638	4274
63	57 42625 924245	53562 522915	17 323912	4273
62	56 89063 401330	53579 846827	17 328185	4280
61	56 35483 554503	53597 175012	17 332465	4278
57 60	55 81886 379491	53614 507477	17 336743	4282
	9.89			

## Log Sines

c	log. sin.	$\Delta^1$	$\Delta^2$	$\Delta^3$
	9.89			
57 60	55 81886 379491	53614 507477	17 336743	4282
59	55 28271 872014	53631 844220	17 341025	4287
58	54 74640 027794	53649 185245	17 345312	4286
57	54 20990 842549	53666 530557	17 349598	4290
56	53 67324 311992	53683 880155	17 353888	4292
57 55	53 13640 431837	53701 234043	17 358180	4295
54	52 59939 197794	53718 592223	17 362475	4297
53	52 06220 605571	53735 954698	17 366772	4300
52	51 52484 650873	53753 321470	17 371072	4301
51	50 98731 329403	53770 692542	17 375373	4305
57 50	50 44960 636861	53788 067915	17 379678	4307
49	49 91172 568946	53805 447593	17 383985	4309
48	49 37367 121353	53822 831578	17 388294	4312
47	48 83544 289775	53840 219872	17 392606	4315
46	48 29704 069903	53857 612478	17 396921	4316
57 45	47 75846 457425	53875 009399	17 401237	4319
44	47 21971 448026	53892 410636	17 405556	4323
43	46 68079 037390	53909 816192	17 409879	4323
42	46 14169 221198	53927 226071	17 414202	4326
41	45 60241 995127	53944 640273	17 418528	4332
57 40	45 06297 354854	53962 058801	17 422860	4328
39	44 52335 296053	53979 481661	17 427188	4337
38	43 98355 814392	53996 908849	17 431525	4335
37	43 44358 905543	54014 340374	17 435860	4339
36	42 90344 565169	54031 776234	17 440199	4342
57 35	42 36312 788935	54049 216433	17 444541	4344
34	41 82263 572502	54066 660974	17 448885	4346
33	41 28196 911528	54084 109859	17 453231	4350
32	40 74112 801669	54101 563090	17 457581	4350
31	40 20011 238579	54119 020671	17 461931	4355
57 30	39 65892 217908	54136 482602	17 466286	4356
29	39 11755 735306	54153 948888	17 470642	4359
28	38 57601 786418	54171 419530	17 475001	4361
27	38 03430 366888	54188 894531	17 479362	4365
26	37 49241 472357	54206 373893	17 483727	4366
57 25	36 95035 098464	54223 857620	17 488093	4368
24	36 40811 240844	54241 345713	17 492461	4373
23	35 86569 895131	54258 838174	17 496834	4372
22	35 32311 056957	54276 335008	17 501206	4378
21	34 78034 721949	54293 836214	17 505584	4378
57 20	34 23740 885735	54311 341798	17 509962	4381
	9.89			

## Log Sines

c		log. sin.	$\Delta^1$	$\Delta^2$	$\Delta^3$
		9.89			
57	20	34 23740 885735	54311 341798	17 509962	4381
	19	33 69429 543937	54328 851760	17 514343	4386
	18	33 15100 692177	54346 366103	17 518729	4384
	17	32 60754 326074	54363 884832	17 523113	4391
	16	32 06390 441242	54381 407945	17 527504	4390
57	15	31 52009 033297	54398 935449	17 531894	4395
	14	30 97610 097848	54416 467343	17 536289	4396
	13	30 43193 630505	54434 003632	17 540685	4399
	12	29 88759 626873	54451 544317	17 545084	4402
	11	29 34308 082556	54469 089401	17 549486	4403
57	10	28 79838 993155	54486 638887	17 553889	4408
	09	28 25352 354268	54504 192776	17 558297	4408
	08	27 70848 161492	54521 751073	17 562705	4412
	07	27 16326 410419	54539 313778	17 567117	4415
	06	26 61787 096641	54556 880895	17 571532	4415
57	05	26 07230 215746	54574 452427	17 575947	4421
	04	25 52655 763319	54592 028374	17 580368	4421
	03	24 98063 734945	54609 608742	17 584789	4424
	02	24 43454 126203	54627 193531	17 589213	4428
	01	23 88826 932672	54644 782744	17 593641	4428
57	00	23 34182 149928	54662 376385	17 598069	4432
56	99	22 79519 773543	54679 974454	17 602501	4436
	98	22 24839 799089	54697 576955	17 606937	4435
	97	21 70142 222134	54715 183892	17 611372	4442
	96	21 15427 038242	54732 795264	17 615814	4440
56	95	20 60694 242978	54750 411078	17 620254	4445
	94	20 05943 831900	54768 031332	17 624699	4448
	93	19 51175 800568	54785 656031	17 629147	4449
	92	18 96390 144537	54803 285178	17 633596	4454
	91	18 41586 859359	54820 918774	17 638050	4453
56	90	17 86765 940585	54838 556824	17 642503	4457
	89	17 31927 383761	54856 199327	17 646960	4463
	88	16 77071 184434	54873 846287	17 651423	4459
	87	16 22197 338147	54891 497710	17 655882	4468
	86	15 67305 840437	54909 153592	17 660350	4466
56	85	15 12396 686845	54926 813942	17 664816	4471
	84	14 57469 872903	54944 478758	17 669287	4472
	83	14 02525 394145	54962 148045	17 673759	4477
	82	13 47563 246100	54979 821804	17 678236	4476
	81	12 92583 424296	54997 500040	17 682712	4482
56	80	12 37585 924256	55015 182752	17 687194	4483
		9.89			

## Log Sines

c		log. sin.	$\Delta^1$	$\Delta^2$	$\Delta^3$
		9.89			
56	80	12 37585 924256	55015 182752	17 687194	4483
	79	11 82570 741504	55032 869946	17 691677	4486
	78	11 27537 871558	55050 561623	17 696163	4487
	77	10 72487 309935	55068 257786	17 700650	4491
	76	10 17419 052149	55085 958436	17 705141	4495
56	75	09 62333 093713	55103 663577	17 709636	4495
	74	09 07229 430136	55121 373213	17 714131	4498
	73	08 52108 056923	55139 087344	17 718629	4503
	72	07 96968 969579	55156 805973	17 723132	4502
	71	07 41812 163606	55174 529105	17 727634	4507
56	70	06 86637 634501	55192 256739	17 732141	4510
	69	06 31445 377762	55209 988880	17 736651	4510
	68	05 76235 388882	55227 725531	17 741161	4515
	67	05 21007 663351	55245 466692	17 745676	4517
	66	04 65762 196659	55263 212368	17 750193	4519
56	65	04 10498 984291	55280 962561	17 754712	4522
	64	03 55218 021730	55298 717273	17 759234	4525
	63	02 99919 304457	55316 476507	17 763759	4527
	62	02 44602 827950	55334 240266	17 768286	4529
	61	01 89268 587684	55352 008552	17 772815	4534
56	60	01 33916 579132	55369 781367	17 777349	4534
	59	00 78546 797765	55387 558716	17 781883	4537
	58	00 23159 239049	55405 340599	17 786420	4542
	57	99 67753 898450	55423 127019	17 790962	4541
	56	99 12330 771431	55440 917981	17 795503	4547
56	55	98 56889 853450	55458 713484	17 800050	4548
	54	98 01431 139966	55476 513534	17 804598	4550
	53	97 45954 626432	55494 318132	17 809148	4553
	52	96 90460 308300	55512 127280	17 813701	4557
	51	96 34948 181020	55529 940981	17 818258	4558
56	50	95 79418 240039	55547 759239	17 822816	4562
	49	95 23870 480800	55565 582055	17 827378	4563
	48	94 68304 898745	55583 409433	17 831941	4567
	47	94 12721 489312	55601 241374	17 836508	4570
	46	93 57120 247938	55619 077882	17 841078	4570
56	45	93 01501 170056	55636 918960	17 845648	4575
	44	92 45864 251096	55654 764608	17 850223	4577
	43	91 90209 486488	55672 614831	17 854800	4581
	42	91 34536 871657	55690 469631	17 859381	4580
	41	90 78846 402026	55708 329012	17 863961	4588
56	40	90 23138 073014	55726 192973	17 868549	4585
		9.88			

## Log Sines

c	log. sin.	$\Delta^1$	$\Delta^2$	$\Delta^3$
	9.88			
56 40	90 23138 073014	55726 192973	17 868549	4585
39	89 67411 880041	55744 061522	17 873134	4591
38	89 11667 818519	55761 934656	17 877725	4594
37	88 55905 883863	55779 812381	17 882319	4594
36	88 00126 071482	55797 694700	17 886913	4599
56 35	87 44328 376782	55815 581613	17 891512	4602
34	86 88512 795169	55833 473125	17 896114	4602
33	86 32679 322044	55851 369239	17 900716	4606
32	85 76827 952805	55869 269955	17 905322	4611
31	85 20958 682850	55887 175277	17 909933	4609
56 30	84 65071 507573	55905 085210	17 914542	4616
29	84 09166 422363	55922 999752	17 919158	4616
28	83 53243 422611	55940 918910	17 923774	4620
27	82 97302 503701	55958 842684	17 928394	4622
26	82 41343 661017	55976 771078	17 933016	4624
56 25	81 85366 889939	55994 704094	17 937640	4630
24	81 29372 185845	56012 641734	17 942270	4628
23	80 73359 544111	56030 584004	17 946898	4634
22	80 17328 960107	56048 530902	17 951532	4635
21	79 61280 429205	56066 482434	17 956167	4639
56 20	79 05213 946771	56084 438601	17 960806	4640
19	78 49129 508170	56102 399407	17 965446	4644
18	77 93027 108763	56120 364853	17 970090	4647
17	77 36906 743910	56138 334943	17 974737	4649
16	76 80768 408967	56156 309680	17 979386	4651
56 15	76 24612 099287	56174 289066	17 984037	4654
14	75 68437 810221	56192 273103	17 988691	4659
13	75 12245 537118	56210 261794	17 993350	4658
12	74 56035 275324	56228 255144	17 998008	4663
11	73 99807 020180	56246 253152	18 002671	4666
56 10	73 43560 767028	56264 255823	18 007337	4667
09	72 87296 511205	56282 263160	18 012004	4671
08	72 31014 248045	56300 275164	18 016675	4674
07	71 74713 972881	56318 291839	18 021349	4674
06	71 18395 681042	56336 313188	18 026023	4681
56 05	70 62059 367854	56354 339211	18 030704	4680
04	70 05705 028643	56372 369915	18 035384	4685
03	69 49332 658728	56390 405299	18 040069	4686
02	68 92942 253429	56408 445368	18 044755	4690
01	68 36533 808061	56426 490123	18 049445	4693
56 00	67 80107 317938	56444 539568	18 054138	4695
	9.88			

## Log Sines

c	log. sin.	$\Delta^1$	$\Delta^2$	$\Delta^3$
	9.88			
56 00	67 80107 317938	56444 539568	18 054138	4695
55 99	67 23662 778370	56462 593706	18 058833	4697
98	66 67200 184664	56480 652539	18 063530	4700
97	66 10719 532125	56498 716069	18 068230	4705
96	65 54220 816056	56516 784299	18 072935	4704
55 95	64 97704 031757	56534 857234	18 077639	4711
94	64 41169 174523	56552 934873	18 082350	4709
93	63 84616 239650	56571 017223	18 087059	4715
92	63 28045 222427	56589 104282	18 091774	4718
91	62 71456 118145	56607 196056	18 096492	4718
55 90	62 14848 922089	56625 292548	18 101210	4723
89	61 58223 629541	56643 393758	18 105933	4725
88	61 01580 235783	56661 499691	18 110658	4729
87	60 44918 736092	56679 610349	18 115387	4729
86	59 88239 125743	56697 725736	18 120116	4734
55 85	59 31541 400007	56715 845852	18 124850	4736
84	58 74825 554155	56733 970702	18 129586	4739
83	58 18091 583453	56752 100288	18 134325	4741
82	57 61339 483165	56770 234613	18 139066	4745
81	57 04569 248552	56788 373679	18 143811	4747
55 80	56 47780 874873	56806 517490	18 148558	4750
79	55 90974 357383	56824 666048	18 153308	4753
78	55 34149 691335	56842 819356	18 158061	4754
77	54 77306 871979	56860 977417	18 162815	4759
76	54 20445 894562	56879 140232	18 167574	4761
55 75	53 63566 754330	56897 307806	18 172335	4764
74	53 06669 446524	56915 480141	18 177099	4765
73	52 49753 966383	56933 657240	18 181864	4771
72	51 92820 309143	56951 839104	18 186635	4772
71	51 35868 470039	56970 025739	18 191407	4773
55 70	50 78898 444300	56988 217146	18 196180	4779
69	50 21910 227154	57006 413326	18 200959	4780
68	49 64903 813828	57024 614285	18 205739	4783
67	49 07879 199543	57042 820024	18 210522	4787
66	48 50836 379519	57061 030546	18 215309	4787
55 65	47 93775 348973	57079 245855	18 220096	4792
64	47 36696 103118	57097 465951	18 224888	4795
63	46 79598 637167	57115 690839	18 229683	4796
62	46 22482 946328	57133 920522	18 234479	4801
61	45 65349 025806	57152 155001	18 239280	4802
55 60	45 08196 870805	57170 394281	18 244082	4805
	9.88			

## Log Sines

c	log. sin.	$\Delta^1$	$\Delta^2$	$\Delta^3$
	9.88			
55 60	45 08196 870805	57170 394281	18 244082	4805
59	44 51026 476524	57188 638363	18 248887	4809
58	43 93837 838161	57206 887250	18 253696	4811
57	43 36630 950911	57225 140946	18 258507	4814
56	42 79405 809965	57243 399453	18 263321	4816
55 55	42 22162 410512	57261 662774	18 268137	4821
54	41 64900 747738	57279 930911	18 272958	4820
53	41 07620 816827	57298 203869	18 277778	4826
52	40 50322 612958	57316 481647	18 282604	4829
51	39 93006 131311	57334 764251	18 287433	4830
55 50	39 35671 367060	57353 051684	18 292263	4833
49	38 78318 315376	57371 343947	18 297096	4837
48	38 20946 971429	57389 641043	18 301933	4838
47	37 63557 330386	57407 942976	18 306771	4844
46	37 06149 387410	57426 249747	18 311615	4844
55 45	36 48723 137663	57444 561362	18 316459	4847
44	35 91278 576301	57462 877821	18 321306	4851
43	35 33815 698480	57481 199127	18 326157	4853
42	34 76334 499353	57499 525284	18 331010	4857
41	34 18834 974069	57517 856294	18 335867	4858
55 40	33 61317 117775	57536 192161	18 340725	4863
39	33 03780 925614	57554 532886	18 345588	4863
38	32 46226 392728	57572 878474	18 350451	4869
37	31 88653 514254	57591 228925	18 355320	4869
36	31 31062 285329	57609 584245	18 360189	4875
55 35	30 73452 701084	57627 944434	18 365064	4874
34	30 15824 756650	57646 309498	18 369938	4880
33	29 58178 447152	57664 679436	18 374818	4882
32	29 00513 767716	57683 054254	18 379700	4885
31	28 42830 713462	57701 433954	18 384585	4885
55 30	27 85129 279508	57719 818539	18 389470	4893
29	27 27409 460969	57738 208009	18 394363	4892
28	26 69671 252960	57756 602372	18 399255	4896
27	26 11914 650588	57775 001627	18 404151	4900
26	25 54139 648961	57793 405778	18 409051	4900
55 25	24 96346 243183	57811 814829	18 413951	4905
24	24 38534 428354	57830 228780	18 418856	4908
23	23 80704 199574	57848 647636	18 423764	4911
22	23 22855 551938	57867 071400	18 428675	4912
21	22 64988 480538	57885 500075	18 433587	4917
55 20	22 07102 980463	57903 933662	18 438504	4918
	9.88			

## Log Sines

c		log. sin.		$\Delta^1$	$\Delta^2$	$\Delta^3$
		9.88				
55	20	22	07102 980463	57903 933662	18 438504	4918
	19	21	49199 046801	57922 372166	18 443422	4923
	18	20	91276 674635	57940 815588	18 448345	4924
	17	20	33335 859047	57959 263933	18 453269	4928
	16	19	75376 595114	57977 717202	18 458197	4930
55	15	19	17398 877912	57996 175399	18 463127	4934
	14	18	59402 702513	58014 638526	18 468061	4936
	13	18	01388 063987	58033 106587	18 472997	4940
	12	17	43354 957400	58051 579584	18 477937	4940
	11	16	85303 377816	58070 057521	18 482877	4947
55	10	16	27233 320295	58088 540398	18 487824	4947
	09	15	69144 779897	58107 028222	18 492771	4951
	08	15	11037 751675	58125 520993	18 497722	4954
	07	14	52912 230682	58144 018715	18 502676	4956
	06	13	94768 211967	58162 521391	18 507632	4959
55	05	13	36605 690576	58181 029023	18 512591	4964
	04	12	78424 661553	58199 541614	18 517555	4964
	03	12	20225 119939	58218 059169	18 522519	4968
	02	11	62007 060770	58236 581688	18 527487	4972
	01	11	03770 479082	58255 109175	18 532459	4974
55	00	10	45515 369907	58273 641634	18 537433	4976
54	99	09	87241 728273	58292 179067	18 542409	4981
	98	09	28949 549206	58310 721476	18 547390	4983
	97	08	70638 827730	58329 268866	18 552373	4984
	96	08	12309 558864	58347 821239	18 557357	4990
54	95	07	53961 737625	58366 378596	18 562347	4991
	94	06	95595 359029	58384 940943	18 567338	4996
	93	06	37210 418086	58403 508281	18 572334	4995
	92	05	78806 909805	58422 080615	18 577329	5002
	91	05	20384 829190	58440 657944	18 582331	5003
54	90	04	61944 171246	58459 240275	18 587334	5006
	89	04	03484 930971	58477 827609	18 592340	5010
	88	03	45007 103362	58496 419949	18 597350	5011
	87	02	86510 683413	58515 017299	18 602361	5016
	86	02	27995 666114	58533 619660	18 607377	5017
54	85	01	69462 046454	58552 227037	18 612394	5022
	84	01	10909 819417	58570 839431	18 617416	5023
	83	00	52338 979986	58589 456847	18 622439	5028
	82	99	93749 523139	58608 079286	18 627467	5028
	81	99	35141 443853	58626 706753	18 632495	5035
54	80	98	76514 737100	58645 339248	18 637530	5035
		9.87				



## Log Sines

c		log. sin.		$\Delta^1$	$\Delta^2$	$\Delta^3$
		9.87				
54	80	98	76514 737100	58645 339248	18 637530	5035
	79	98	17869 397852	58663 976778	18 642565	5038
	78	97	59205 421074	58682 619343	18 647603	5042
	77	97	00522 801731	58701 266946	18 652645	5045
	76	96	41821 534785	58719 919591	18 657690	5048
54	75	95	83101 615194	58738 577281	18 662738	5049
	74	95	24363 037913	58757 240019	18 667787	5055
	73	94	65605 797894	58775 907806	18 672842	5056
	72	94	06829 890088	58794 580648	18 677898	5060
	71	93	48035 309440	58813 258546	18 682958	5061
54	70	92	89222 050894	58831 941504	18 688019	5067
	69	92	30390 109390	58850 629523	18 693086	5068
	68	91	71539 479867	58869 322609	18 698154	5071
	67	91	12670 157258	58888 020763	18 703225	5076
	66	90	53782 136495	58906 723988	18 708301	5075
54	65	89	94875 412507	58925 432289	18 713376	5082
	64	89	35949 980218	58944 145665	18 718458	5083
	63	88	77005 834553	58962 864123	18 723541	5086
	62	88	18042 970430	58981 587664	18 728627	5090
	61	87	59061 382766	59000 316291	18 733717	5092
54	60	87	00061 066475	59019 050008	18 738809	5095
	59	86	41042 016467	59037 788817	18 743904	5100
	58	85	82004 227650	59056 532721	18 749004	5099
	57	85	22947 694929	59075 281725	18 754103	5107
	56	84	63872 413204	59094 035828	18 759210	5105
54	55	84	04778 377376	59112 795038	18 764315	5112
	54	83	45665 582338	59131 559353	18 769427	5113
	53	82	86534 022985	59150 328780	18 774540	5116
	52	82	27383 694205	59169 103320	18 779656	5120
	51	81	68214 590885	59187 882976	18 784776	5123
54	50	81	09026 707909	59206 667752	18 789899	5124
	49	80	49820 040157	59225 457651	18 795023	5130
	48	79	90594 582506	59244 252674	18 800153	5131
	47	79	31350 329832	59263 052827	18 805284	5134
	46	78	72087 277005	59281 858111	18 810418	5139
54	45	78	12805 418894	59300 668529	18 815557	5140
	44	77	53504 750365	59319 484086	18 820697	5143
	43	76	94185 266279	59338 304783	18 825840	5147
	42	76	34846 961496	59357 130623	18 830987	5151
	41	75	75489 830873	59375 961610	18 836138	5152
54	40	75	16113 869263	59394 797748	18 841290	5155
		9.87				

## Log Sines

c	log. sin.	$\Delta^1$	$\Delta^2$	$\Delta^3$
	9.87			
54 40	75 16113 869263	59394 797748	18 841290	5155
39	74 56719 071515	59413 639038	18 846445	5160
38	73 97305 432477	59432 485483	18 851605	5162
37	73 37872 946994	59451 337088	18 856767	5165
36	72 78421 609906	59470 193855	18 861932	5167
54 35	72 18951 416051	59489 055787	18 867099	5172
34	71 59462 360264	59507 922886	18 872271	5175
33	70 99954 437378	59526 795157	18 877446	5176
32	70 40427 642221	59545 672603	18 882622	5180
31	69 80881 969618	59564 555225	18 887802	5184
54 30	69 21317 414393	59583 443027	18 892986	5187
29	68 61733 971366	59602 336013	18 898173	5189
28	68 02131 635353	59621 234186	18 903362	5193
27	67 42510 401167	59640 137548	18 908555	5194
26	66 82870 263619	59659 046103	18 913749	5201
54 25	66 23211 217516	59677 959852	18 918950	5200
24	65 63533 257664	59696 878802	18 924150	5206
23	65 03836 378862	59715 802952	18 929356	5207
22	64 44120 575910	59734 732308	18 934563	5212
21	63 84385 843602	59753 666871	18 939775	5214
54 20	63 24632 176731	59772 606646	18 944989	5217
19	62 64859 570085	59791 551635	18 950206	5220
18	62 05068 018450	59810 501841	18 955426	5224
17	61 45257 516609	59829 457267	18 960650	5226
16	60 85428 059342	59848 417917	18 965876	5230
54 15	60 25579 641425	59867 383793	18 971106	5233
14	59 65712 257632	59886 354899	18 976339	5234
13	59 05825 902733	59905 331238	18 981573	5241
12	58 45920 571495	59924 312811	18 986814	5242
11	57 85996 258684	59943 299625	18 992056	5243
54 10	57 26052 959059	59962 291681	18 997299	5251
09	56 66090 667378	59981 288980	19 002550	5249
08	56 06109 378398	60000 291530	19 007799	5256
07	55 46109 086868	60019 299329	19 013055	5257
06	54 86089 787539	60038 312384	19 018312	5260
54 05	54 26051 475155	60057 330696	19 023572	5265
04	53 65994 144459	60076 354268	19 028837	5267
03	53 05917 790191	60095 383105	19 034104	5269
02	52 45822 407086	60114 417209	19 039373	5274
01	51 85707 989877	60133 456582	19 044647	5276
54 00	51 25574 533295	60152 501229	19 049923	5279
	9.87			

## Log Sines

c	log. sin.	$\Delta^1$	$\Delta^2$	$\Delta^3$
	9.87			
54 00	51 25574 533295	60152 501229	19 049923	5279
53 99	50 65422 032066	60171 551152	19 055202	5284
98	50 05250 480914	60190 606354	19 060486	5285
97	49 45059 874560	60209 666840	19 065771	5288
96	48 84850 207720	60228 732611	19 071059	5294
53 95	48 24621 475109	60247 803670	19 076353	5293
94	47 64373 671439	60266 880023	19 081646	5300
93	47 04106 791416	60285 961669	19 086946	5300
92	46 43820 829747	60305 048615	19 092246	5306
91	45 83515 781132	60324 140861	19 097552	5308
53 90	45 23191 640271	60343 238413	19 102860	5309
89	44 62848 401858	60362 341273	19 108169	5315
88	44 02486 060585	60381 449442	19 113484	5318
87	43 42104 611143	60400 562926	19 118802	5320
86	42 81704 048217	60419 681728	19 124122	5323
53 85	42 21284 366489	60438 805850	19 129445	5328
84	41 60845 560639	60457 935295	19 134773	5328
83	41 00387 625344	60477 070068	19 140101	5335
82	40 39910 555276	60496 210169	19 145436	5335
81	39 79414 345107	60515 355605	19 150771	5341
53 80	39 18898 989502	60534 506376	19 156112	5340
79	38 58364 483126	60553 662488	19 161452	5348
78	37 97810 820638	60572 823940	19 166800	5348
77	37 37237 996698	60591 990740	19 172148	5353
76	36 76646 005958	60611 162888	19 177501	5354
53 75	36 16034 843070	60630 340389	19 182855	5360
74	35 55404 502681	60649 523244	19 188215	5361
73	34 94754 979437	60668 711459	19 193576	5365
72	34 34086 267978	60687 905035	19 198941	5368
71	33 73398 362943	60707 103976	19 204309	5372
53 70	33 12691 258967	60726 308285	19 209681	5373
69	32 51964 950682	60745 517966	19 215054	5380
68	31 91219 432716	60764 733020	19 220434	5379
67	31 30454 699696	60783 953454	19 225813	5385
66	30 69670 746242	60803 179267	19 231198	5387
53 65	30 08867 566975	60822 410465	19 236585	5391
64	29 48045 156510	60841 647050	19 241976	5394
63	28 87203 509460	60860 889026	19 247370	5396
62	28 26342 620434	60880 136396	19 252766	5401
61	27 65462 484038	60899 389162	19 258167	5404
53 60	27 04563 094876	60918 647329	19 263571	5405
	9.87			

## Log Sines

c	log. sin.	$\Delta^1$	$\Delta^2$	$\Delta^3$
	9.87			
53 60	27 04563 094876	60918 647329	19 263571	5405
59	26 43644 447547	60937 910900	19 268976	5411
58	25 82706 536647	60957 179876	19 274387	5414
57	25 21749 356771	60976 454263	19 279801	5414
56	24 60772 902508	60995 734064	19 285215	5422
53 55	23 99777 168444	61015 019279	19 290637	5422
54	23 38762 149165	61034 309916	19 296059	5426
53	22 77727 839249	61053 605975	19 301485	5429
52	22 16674 233274	61072 907460	19 306914	5433
51	21 55601 325814	61092 214374	19 312347	5435
53 50	20 94509 111440	61111 526721	19 317782	5441
49	20 33397 584719	61130 844503	19 323223	5440
48	19 72266 740216	61150 167726	19 328663	5447
47	19 11116 572490	61169 496389	19 334110	5449
46	18 49947 076101	61188 830499	19 339559	5451
53 45	17 88758 245602	61208 170058	19 345010	5456
44	17 27550 075544	61227 515068	19 350466	5458
43	16 66322 560476	61246 865534	19 355924	5463
42	16 05075 694942	61266 221458	19 361387	5465
41	15 43809 473484	61285 582845	19 366852	5467
53 40	14 82523 890639	61304 949697	19 372319	5473
39	14 21218 940942	61324 322016	19 377792	5475
38	13 59894 618926	61343 699808	19 383267	5478
37	12 98550 919118	61363 083075	19 388745	5481
36	12 37187 836043	61382 471820	19 394226	5485
53 35	11 75805 364223	61401 866046	19 399711	5488
34	11 14403 498177	61421 265757	19 405199	5492
33	10 52982 232420	61440 670956	19 410691	5495
32	09 91541 561464	61460 081647	19 416186	5497
31	09 30081 479817	61479 497833	19 421683	5501
53 30	08 68601 981984	61498 919516	19 427184	5505
29	08 07103 062468	61518 346700	19 432689	5509
28	07 45584 715768	61537 779389	19 438198	5509
27	06 84046 936379	61557 217587	19 443707	5516
26	06 22489 718792	61576 661294	19 449223	5517
53 25	05 60913 057498	61596 110517	19 454740	5521
24	04 99316 946981	61615 565257	19 460261	5526
23	04 37701 381724	61635 025518	19 465787	5525
22	03 76066 356206	61654 491305	19 471312	5534
21	03 14411 864901	61673 962617	19 476846	5531
53 20	02 52737 902284	61693 439463	19 482377	5541
	9.87			

## Log Sines

c		log. sin.	$\Delta^1$	$\Delta^2$	$\Delta^3$
		9.87			
53	20	02 52737 902284	61693 439463	19 482377	5541
	19	01 91044 462821	61712 921840	19 487918	5539
	18	01 29331 540981	61732 409758	19 493457	5544
	17	00 67599 131223	61751 903215	19 499001	5549
	16	00 05847 228008	61771 402216	19 504550	5550
53	15	99 44075 825792	61790 906766	19 510100	5554
	14	98 82284 919026	61810 416866	19 515654	5559
	13	98 20474 502160	61829 932520	19 521213	5560
	12	97 58644 569640	61849 453733	19 526773	5565
	11	96 96795 115907	61868 980506	19 532338	5566
53	10	96 34926 135401	61888 512844	19 537904	5573
	09	95 73037 622557	61908 050748	19 543477	5573
	08	95 11129 571809	61927 594225	19 549050	5579
	07	94 49201 977584	61947 143275	19 554629	5579
	06	93 87254 834309	61966 697904	19 560208	5586
53	05	93 25288 136405	61986 258112	19 565794	5588
	04	92 63301 878293	62005 823906	19 571382	5590
	03	92 01296 054387	62025 395288	19 576972	5595
	02	91 39270 659099	62044 972260	19 582567	5597
	01	90 77225 686839	62064 554827	19 588164	5603
53	00	90 15161 132012	62084 142991	19 593767	5603
52	99	89 53076 989021	62103 736758	19 599370	5609
	98	88 90973 252263	62123 336128	19 604979	5611
	97	88 28849 916135	62142 941107	19 610590	5615
	96	87 66706 975028	62162 551697	19 616205	5617
52	95	87 04544 423331	62182 167902	19 621822	5622
	94	86 42362 255429	62201 789724	19 627444	5625
	93	85 80160 465705	62221 417168	19 633069	5629
	92	85 17939 048537	62241 050237	19 638698	5630
	91	84 55697 998300	62260 688935	19 644328	5637
52	90	83 93437 309365	62280 333263	19 649965	5637
	89	83 31156 976102	62299 983228	19 655602	5641
	88	82 68856 992874	62319 638830	19 661243	5648
	87	82 06537 354044	62339 300073	19 666891	5646
	86	81 44198 053971	62358 966964	19 672537	5654
52	85	80 81839 087007	62378 639501	19 678191	5654
	84	80 19460 447506	62398 317692	19 683845	5659
	83	79 57062 129814	62418 001537	19 689504	5663
	82	78 94644 128277	62437 691041	19 695167	5665
	81	78 32206 437236	62457 386208	19 700832	5669
52	80	77 69749 051028	62477 087040	19 706501	5674
		9.86			

## Log Sines

c		log. sin.	$\Delta^1$	$\Delta^2$	$\Delta^3$
		9.86			
52	80	77 69749 051028	62477 087040	19 706501	5674
	79	77 07271 963988	62496 793541	19 712175	5674
	78	76 44775 170447	62516 505716	19 717849	5680
	77	75 82258 664731	62536 223565	19 723529	5684
	76	75 19722 441166	62555 947094	19 729213	5684
52	75	74 57166 494072	62575 676307	19 734897	5692
	74	73 94590 817765	62595 411204	19 740589	5691
	73	73 31995 406561	62615 151793	19 746280	5698
	72	72 69380 254768	62634 898073	19 751978	5699
	71	72 06745 356695	62654 650051	19 757677	5704
52	70	71 44090 706644	62674 407728	19 763381	5706
	69	70 81416 298916	62694 171109	19 769087	5712
	68	70 18722 127807	62713 940196	19 774799	5712
	67	69 56008 187611	62733 714995	19 780511	5718
	66	68 93274 472616	62753 495506	19 786229	5721
52	65	68 30520 977110	62773 281735	19 791950	5724
	64	67 67747 695375	62793 073685	19 797674	5727
	63	67 04954 621690	62812 871359	19 803401	5731
	62	66 42141 750331	62832 674760	19 809132	5735
	61	65 79309 075571	62852 483892	19 814867	5738
52	60	65 16456 591679	62872 298759	19 820605	5741
	59	64 53584 292920	62892 119364	19 826346	5745
	58	63 90692 173556	62911 945710	19 832091	5749
	57	63 27780 227846	62931 777801	19 837840	5752
	56	62 64848 450045	62951 615641	19 843592	5754
52	55	62 01896 834404	62971 459233	19 849346	5760
	54	61 38925 375171	62991 308579	19 855106	5762
	53	60 75934 066592	63011 163685	19 860868	5766
	52	60 12922 902907	63031 024553	19 866634	5769
	51	59 49891 878354	63050 891187	19 872403	5774
52	50	58 86840 987167	63070 763590	19 878177	5774
	49	58 23770 223577	63090 641767	19 883951	5782
	48	57 60679 581810	63110 525718	19 889733	5782
	47	56 97569 056092	63130 415451	19 895515	5787
	46	56 34438 640641	63150 310966	19 901302	5791
52	45	55 71288 329675	63170 212268	19 907093	5793
	44	55 08118 117407	63190 119361	19 912886	5798
	43	54 44927 998046	63210 032247	19 918684	5800
	42	53 81717 965799	63229 950931	19 924484	5805
	41	53 18488 014868	63249 875415	19 930289	5809
52	40	52 55238 139453	63269 805704	19 936098	5809
		9.86			

## Log Sines

c	log. sin.	$\Delta^1$	$\Delta^2$	$\Delta^3$
	9.86			
52 40	52 55238 139453	63269 805704	19 936098	5809
39	51 91968 333749	63289 741802	19 941907	5817
38	51 28678 591947	63309 683709	19 947724	5818
37	50 65368 908238	63329 631433	19 953542	5821
36	50 02039 276805	63349 584975	19 959363	5826
52 35	49 38689 691830	63369 544338	19 965189	5830
34	48 75320 147492	63389 509527	19 971019	5832
33	48 11930 637965	63409 480546	19 976851	5836
32	47 48521 157419	63429 457397	19 982687	5839
31	46 85091 700022	63449 440084	19 988526	5845
52 30	46 21642 259938	63469 428610	19 994371	5846
29	45 58172 831328	63489 422981	20 000217	5850
28	44 94683 408347	63509 423198	20 006067	5854
27	44 31173 985149	63529 429265	20 011921	5857
26	43 67644 555884	63549 441186	20 017778	5863
52 25	43 04095 114698	63569 458964	20 023641	5862
24	42 40525 655734	63589 482605	20 029503	5870
23	41 76936 173129	63609 512108	20 035373	5871
22	41 13326 661021	63629 547481	20 041244	5875
21	40 49697 113540	63649 588725	20 047119	5880
52 20	39 86047 524815	63669 635844	20 052999	5881
19	39 22377 888971	63689 688843	20 058880	5887
18	38 58688 200128	63709 747723	20 064767	5889
17	37 94978 452405	63729 812490	20 070656	5894
16	37 31248 639915	63749 883146	20 076550	5896
52 15	36 67498 756769	63769 959696	20 082446	5901
14	36 03728 797073	63790 042142	20 088347	5904
13	35 39938 754931	63810 130489	20 094251	5906
12	34 76128 624442	63830 224740	20 100157	5913
11	34 12298 399702	63850 324897	20 106070	5914
52 10	33 48448 074805	63870 430967	20 111984	5919
09	32 84577 643838	63890 542951	20 117903	5920
08	32 20687 100887	63910 660854	20 123823	5928
07	31 56776 440033	63930 784677	20 129751	5928
06	30 92845 655356	63950 914428	20 135679	5933
52 05	30 28894 740928	63971 050107	20 141612	5936
04	29 64923 690821	63991 191719	20 147548	5941
03	29 00932 499102	64011 339267	20 153489	5943
02	28 36921 159835	64031 492756	20 159432	5947
01	27 72889 667079	64051 652188	20 165379	5951
52 00	27 08838 014891	64071 817567	20 171330	5955
	9.86			

## Log Sines

c	log. sin.	$\Delta^1$	$\Delta^2$	$\Delta^3$
	9.86			
52 00	27 08838 014891	64071 817567	20 171330	5955
51 99	26 44766 197324	64091 988897	20 177285	5958
98	25 80674 208427	64112 166182	20 183243	5962
97	25 16562 042245	64132 349425	20 189205	5964
96	24 52429 692820	64152 538630	20 195169	5972
51 95	23 88277 154190	64172 733799	20 201141	5970
94	23 24104 420391	64192 934940	20 207111	5978
93	22 59911 485451	64213 142051	20 213089	5979
92	21 95698 343400	64233 355140	20 219068	5984
91	21 31464 988260	64253 574208	20 225052	5987
51 90	20 67211 414052	64273 799260	20 231039	5992
89	20 02937 614792	64294 030299	20 237031	5994
88	19 38643 584493	64314 267330	20 243025	5999
87	18 74329 317163	64334 510355	20 249024	6001
86	18 09994 806808	64354 759379	20 255025	6006
51 85	17 45640 047429	64375 014404	20 261031	6009
84	16 81265 033025	64395 275435	20 267040	6014
83	16 16869 757590	64415 542475	20 273054	6015
82	15 52454 215115	64435 815529	20 279069	6022
81	14 88018 399586	64456 094598	20 285091	6024
51 80	14 23562 304988	64476 379689	20 291115	6026
79	13 59085 925299	64496 670804	20 297141	6034
78	12 94589 254495	64516 967945	20 303175	6033
77	12 30072 286550	64537 271120	20 309208	6039
76	11 65535 015430	64557 580328	20 315247	6043
51 75	11 00977 435102	64577 895575	20 321290	6047
74	10 36399 539527	64598 216865	20 327337	6048
73	09 71801 322662	64618 544202	20 333385	6056
72	09 07182 778460	64638 877587	20 339441	6055
71	08 42543 900873	64659 217028	20 345496	6062
51 70	07 77884 683845	64679 562524	20 351558	6065
69	07 13205 121321	64699 914082	20 357623	6068
68	06 48505 207239	64720 271705	20 363691	6072
67	05 83784 935534	64740 635396	20 369763	6077
66	05 19044 300138	64761 005159	20 375840	6078
51 65	04 54283 294979	64781 380999	20 381918	6085
64	03 89501 913980	64801 762917	20 388003	6086
63	03 24700 151063	64822 150920	20 394089	6091
62	02 59878 000143	64842 545009	20 400180	6095
61	01 95035 455134	64862 945189	20 406275	6097
51 60	01 30172 509945	64883 351464	20 412372	6104
	9.86			



## Log Sines

c		log. sin.			$\Delta^1$		$\Delta^2$		$\Delta^3$
		9.86							
51	60	01	30172	509945	64883	351464	20	412372	6104
	59	00	65289	158481	64903	763836	20	418476	6104
	58	00	00385	394645	64924	182312	20	424580	6110
	57	99	35461	212333	64944	606892	20	430690	6114
	56	98	70516	605441	64965	037582	20	436804	6117
51	55	98	05551	567859	64985	474386	20	442921	6119
	54	97	40566	093473	65005	917307	20	449040	6127
	53	96	75560	176166	65026	366347	20	455167	6127
	52	96	10533	809819	65046	821514	20	461294	6131
	51	95	45486	988305	65067	282808	20	467425	6138
51	50	94	80419	705497	65087	750233	20	473563	6138
	49	94	15331	955264	65108	223796	20	479701	6145
	48	93	50223	731468	65128	703497	20	485846	6145
	47	92	85095	027971	65149	189343	20	491991	6153
	46	92	19945	838628	65169	681334	20	498144	6153
51	45	91	54776	157294	65190	179478	20	504297	6160
	44	90	89585	977816	65210	683775	20	510457	6161
	43	90	24375	294041	65231	194232	20	516618	6167
	42	89	59144	099809	65251	710850	20	522785	6169
	41	88	93892	388959	65272	233635	20	528954	6174
51	40	88	28620	155324	65292	762589	20	535128	6178
	39	87	63327	392735	65313	297717	20	541306	6181
	38	86	98014	095018	65333	839023	20	547487	6185
	37	86	32680	255995	65354	386510	20	553672	6188
	36	85	67325	869485	65374	940182	20	559860	6195
51	35	85	01950	929303	65395	500042	20	566055	6194
	34	84	36555	429261	65416	066097	20	572249	6201
	33	83	71139	363164	65436	638346	20	578450	6205
	32	83	05702	724818	65457	216796	20	584655	6207
	31	82	40245	508022	65477	801451	20	590862	6213
51	30	81	74767	706571	65498	392313	20	597075	6214
	29	81	09269	314258	65518	989388	20	603289	6220
	28	80	43750	324870	65539	592677	20	609509	6225
	27	79	78210	732193	65560	202186	20	615734	6224
	26	79	12650	530007	65580	817920	20	621958	6234
51	25	78	47069	712087	65601	439878	20	628192	6232
	24	77	81468	272209	65622	068070	20	634424	6241
	23	77	15846	204139	65642	702494	20	640665	6241
	22	76	50203	501645	65663	343159	20	646906	6247
	21	75	84540	158486	65683	990065	20	653153	6251
51	20	75	18856	168421	65704	643218	20	659404	6252
		9.85							

## Log Sines

c		log. sin.		$\Delta^1$		$\Delta^2$		$\Delta^3$
		9.85						
51	20	75	18856 168421	65704	643218	20	659404	6252
	19	74	53151 525203	65725	302622	20	665656	6259
	18	73	87426 222581	65745	968278	20	671915	6263
	17	73	21680 254303	65766	640193	20	678178	6263
	16	72	55913 614110	65787	318371	20	684441	6272
51	15	71	90126 295739	65808	002812	20	690713	6272
	14	71	24318 292927	65828	693525	20	696985	6278
	13	70	58489 599402	65849	390510	20	703263	6281
	12	69	92640 208892	65870	093773	20	709544	6284
	11	69	26770 115119	65890	803317	20	715828	6290
51	10	68	60879 311802	65911	519145	20	722118	6293
	09	67	94967 792657	65932	241263	20	728411	6295
	08	67	29035 551394	65952	969674	20	734706	6303
	07	66	63082 581720	65973	704380	20	741009	6303
	06	65	97108 877340	65994	445389	20	747312	6308
51	05	65	31114 431951	66015	192701	20	753620	6314
	04	64	65099 239250	66035	946321	20	759934	6314
	03	63	99063 292929	66056	706255	20	766248	6322
	02	63	33006 586674	66077	472503	20	772570	6322
	01	62	66929 114171	66098	245073	20	778892	6330
51	00	62	00830 869098	66119	023965	20	785222	6331
50	99	61	34711 845133	66139	809187	20	791553	6336
	98	60	68572 035946	66160	600740	20	797889	6339
	97	60	02411 435206	66181	398629	20	804228	6343
	96	59	36230 036577	66202	202857	20	810571	6350
50	95	58	70027 833720	66223	013428	20	816921	6349
	94	58	03804 820292	66243	830349	20	823270	6357
	93	57	37560 989943	66264	653619	20	829627	6358
	92	56	71296 336324	66285	483246	20	835985	6364
	91	56	05010 853078	66306	319231	20	842349	6368
50	90	55	38704 533847	66327	161580	20	848717	6369
	89	54	72377 372267	66348	010297	20	855086	6378
	88	54	06029 361970	66368	865383	20	861464	6377
	87	53	39660 496587	66389	726847	20	867841	6383
	86	52	73270 769740	66410	594688	20	874224	6388
50	85	52	06860 175052	66431	468912	20	880612	6391
	84	51	40428 706140	66452	349524	20	887003	6394
	83	50	73976 356616	66473	236527	20	893397	6399
	82	50	07503 120089	66494	129924	20	899796	6404
	81	49	41008 990165	66515	029720	20	906200	6405
50	80	48	74493 960445	66535	935920	20	912605	6413
		9.85						

## Log Sines

c		log. sin.	$\Delta^1$	$\Delta^2$	$\Delta^3$
		9.85			
50	80	48 74493 960445	66535 935920	20 912605	6413
	79	48 07958 024525	66556 848525	20 919018	6413
	78	47 41401 176000	66577 767543	20 925431	6420
	77	46 74823 408457	66598 692974	20 931851	6421
	76	46 08224 715483	66619 624825	20 938272	6429
50	75	45 41605 090658	66640 563097	20 944701	6430
	74	44 74964 527561	66661 507798	20 951131	6434
	73	44 08303 019763	66682 458929	20 957565	6439
	72	43 41620 560834	66703 416494	20 964004	6443
	71	42 74917 144340	66724 380498	20 970447	6446
50	70	42 08192 763842	66745 350945	20 976893	6453
	69	41 41447 412897	66766 327838	20 983346	6452
	68	40 74681 085059	66787 311184	20 989798	6461
	67	40 07893 773875	66808 300982	20 996259	6461
	66	39 41085 472893	66829 297241	21 002720	6468
50	65	38 74256 175652	66850 299961	21 009188	6470
	64	38 07405 875691	66871 309149	21 015658	6476
	63	37 40534 566542	66892 324807	21 022134	6479
	62	36 73642 241735	66913 346941	21 028613	6481
	61	36 06728 894794	66934 375554	21 035094	6489
50	60	35 39794 519240	66955 410648	21 041583	6490
	59	34 72839 108592	66976 452231	21 048073	6495
	58	34 05862 656361	66997 500304	21 054568	6500
	57	33 38865 156057	67018 554872	21 061068	6503
	56	32 71846 601185	67039 615940	21 067571	6506
50	55	32 04806 985245	67060 683511	21 074077	6512
	54	31 37746 301734	67081 757588	21 080589	6516
	53	30 70664 544146	67102 838177	21 087105	6519
	52	30 03561 705969	67123 925282	21 093624	6523
	51	29 36437 780687	67145 018906	21 100147	6527
50	50	28 69292 761781	67166 119053	21 106674	6534
	49	28 02126 642728	67187 225727	21 113208	6533
	48	27 34939 417001	67208 338935	21 119741	6541
	47	26 67731 078066	67229 458676	21 126282	6544
	46	26 00501 619390	67250 584958	21 132826	6547
50	45	25 33251 034432	67271 717784	21 139373	6553
	44	24 65979 316648	67292 857157	21 145926	6555
	43	23 98686 459491	67314 003083	21 152481	6562
	42	23 31372 456408	67335 155564	21 159043	6562
	41	22 64037 300844	67356 314607	21 165605	6571
50	40	21 96680 986237	67377 480212	21 172176	6570
		9.85			

## Log Sines

c		log. sin.		$\Delta^1$	$\Delta^2$	$\Delta^3$
		9.85				
50	40	21	96680 986237	67377 480212	21 172176	6570
	39	21	29303 506025	67398 652388	21 178746	6577
	38	20	61904 853637	67419 831134	21 185323	6582
	37	19	94485 022503	67441 016457	21 191905	6585
	36	19	27044 006046	67462 208362	21 198490	6587
50	35	18	59581 797684	67483 406852	21 205077	6594
	34	17	92098 390832	67504 611929	21 211671	6598
	33	17	24593 778903	67525 823600	21 218269	6600
	32	16	57067 955303	67547 041869	21 224869	6606
	31	15	89520 913434	67568 266738	21 231475	6610
50	30	15	21952 646696	67589 498213	21 238085	6613
	29	14	54363 148483	67610 736298	21 244698	6619
	28	13	86752 412185	67631 980996	21 251317	6620
	27	13	19120 431189	67653 232313	21 257937	6628
	26	12	51467 198876	67674 490250	21 264565	6629
50	25	11	83792 708626	67695 754815	21 271194	6635
	24	11	16096 953811	67717 026009	21 277829	6638
	23	10	48379 927802	67738 303838	21 284467	6644
	22	09	80641 623964	67759 588305	21 291111	6645
	21	09	12882 035659	67780 879416	21 297756	6653
50	20	08	45101 156243	67802 177172	21 304409	6655
	19	07	77298 979071	67823 481581	21 311064	6658
	18	07	09475 497490	67844 792645	21 317722	6665
	17	06	41630 704845	67866 110367	21 324387	6666
	16	05	73764 594478	67887 434754	21 331053	6674
50	15	05	05877 159724	67908 765807	21 337727	6675
	14	04	37968 393917	67930 103534	21 344402	6681
	13	03	70038 290383	67951 447936	21 351083	6684
	12	03	02086 842447	67972 799019	21 357767	6688
	11	02	34114 043428	67994 156786	21 364455	6694
50	10	01	66119 886642	68015 521241	21 371149	6696
	09	00	98104 365401	68036 892390	21 377845	6703
	08	00	30067 473011	68058 270235	21 384548	6704
	07	99	62009 202776	68079 654783	21 391252	6710
	06	98	93929 547993	68101 046035	21 397962	6714
50	05	98	25828 501958	68122 443997	21 404676	6718
	04	97	57706 057961	68143 848673	21 411394	6723
	03	96	89562 209288	68165 260067	21 418117	6727
	02	96	21396 949221	68186 678184	21 424844	6729
	01	95	53210 271037	68208 103028	21 431573	6736
50	00	94	85002 168009	68229 534601	21 438309	6740
		9.84				

**TABLE 2:**  $\log \sin$  from  $50^\circ$  to  $0^\circ$

## Log Sines

c	log. sin.			$\Delta^1$
50 00	9.8494	85002	168009	.0000 68229 534601
49 99	9.8494	16772	633408	68250 972910
98	9.8493	48521	660498	68272 417959
97	9.8492	80249	242539	68293 869750
96	9.8492	11955	372789	68315 328290
49 95	9.8491	43640	044499	.0000 68336 793582
94	9.8490	75303	250917	68358 265629
93	9.8490	06944	985288	68379 744438
92	9.8489	38565	240850	68401 230011
91	9.8488	70164	010839	68422 722353
49 90	9.8488	01741	288486	.0000 68444 221468
89	9.8487	33297	067018	68465 727362
88	9.8486	64831	339656	68487 240035
87	9.8485	96344	099621	68508 759497
86	9.8485	27835	340124	68530 285748
49 85	9.8484	59305	054376	.0000 68551 818793
84	9.8483	90753	235583	68573 358638
83	9.8483	22179	876945	68594 905286
82	9.8482	53584	971659	68616 458741
81	9.8481	84968	512918	68638 019009
49 80	9.8481	16330	493909	.0000 68659 586091
79	9.8480	47670	907818	68681 159995
78	9.8479	78989	747823	68702 740723
77	9.8479	10287	007100	68724 328279
76	9.8478	41562	678821	68745 922671
49 75	9.8477	72816	756150	.0000 68767 523898
74	9.8477	04049	232252	68789 131968
73	9.8476	35260	100284	68810 746884
72	9.8475	66449	353400	68832 368650
71	9.8474	97616	984750	68853 997272
49 70	9.8474	28762	987478	.0000 68875 632753
69	9.8473	59887	354725	68897 275096
68	9.8472	90990	079629	68918 924309
67	9.8472	22071	155320	68940 580393
66	9.8471	53130	574927	68962 243353
49 65	9.8470	84168	331574	.0000 68983 913195
64	9.8470	15184	418379	69005 589922
63	9.8469	46178	828457	69027 273538
62	9.8468	77151	554919	69048 964048
61	9.8468	08102	590871	69070 661457
49 60	9.8467	39031	929414	.0000 69092 365769

## Log Sines

c	log. sin.			$\Delta^1$
49 60	9.8467	39031	929414	.0000 69092 365769
59	9.8466	69939	563645	69114 076986
58	9.8466	00825	486659	69135 795116
57	9.8465	31689	691543	69157 520162
56	9.8464	62532	171381	69179 252127
49 55	9.8463	93352	919254	.0000 69200 991017
54	9.8463	24151	928237	69222 736837
53	9.8462	54929	191400	69244 489588
52	9.8461	85684	701812	69266 249279
51	9.8461	16418	452533	69288 015910
49 50	9.8460	47130	436623	.0000 69309 789489
49	9.8459	77820	647134	69331 570019
48	9.8459	08489	077115	69353 357503
47	9.8458	39135	719612	69375 151948
46	9.8457	69760	567664	69396 953356
49 45	9.8457	00363	614308	.0000 69418 761732
44	9.8456	30944	852576	69440 577083
43	9.8455	61504	275493	69462 399410
42	9.8454	92041	876083	69484 228719
41	9.8454	22557	647364	69506 065015
49 40	9.8453	53051	582349	.0000 69527 908300
39	9.8452	83523	674049	69549 758581
38	9.8452	13973	915468	69571 615862
37	9.8451	44402	299606	69593 480146
36	9.8450	74808	819460	69615 351439
49 35	9.8450	05193	468021	.0000 69637 229744
34	9.8449	35556	238277	69659 115068
33	9.8448	65897	123209	69681 007412
32	9.8447	96216	115797	69702 906783
31	9.8447	26513	209014	69724 813185
49 30	9.8446	56788	395829	.0000 69746 726621
29	9.8445	87041	669208	69768 647099
28	9.8445	17273	022109	69790 574618
27	9.8444	47482	447491	69812 509188
26	9.8443	77669	938303	69834 450810
49 25	9.8443	07835	487493	.0000 69856 399490
24	9.8442	37979	088003	69878 355231
23	9.8441	68100	732772	69900 318040
22	9.8440	98200	414732	69922 287919
21	9.8440	28278	126813	69944 264875
49 20	9.8439	58333	861938	.0000 69966 248909

## Log Sines

c	log. sin.			$\Delta^1$
49 20	9.8439	58333	861938	.0000 69966 248909
19	9.8438	88367	613029	69988 240028
18	9.8438	18379	373001	70010 238237
17	9.8437	48369	134764	70032 243539
16	9.8436	78336	891225	70054 255939
49 15	9.8436	08282	635286	.0000 70076 275442
14	9.8435	38206	359844	70098 302052
13	9.8434	68108	057792	70120 335773
12	9.8433	97987	722019	70142 376611
11	9.8433	27845	345408	70164 424570
49 10	9.8432	57680	920838	.0000 70186 479653
09	9.8431	87494	441185	70208 541867
08	9.8431	17285	899318	70230 611215
07	9.8430	47055	288103	70252 687702
06	9.8429	76802	600401	70274 771331
49 05	9.8429	06527	829070	.0000 70296 862111
04	9.8428	36230	966959	70318 960041
03	9.8427	65912	006918	70341 065129
02	9.8426	95570	941789	70363 177378
01	9.8426	25207	764411	70385 296795
49 00	9.8425	54822	467616	.0000 70407 423382
48 99	9.8424	84415	044234	70429 557144
98	9.8424	13985	487090	70451 698087
97	9.8423	43533	789003	70473 846213
96	9.8422	73059	942790	70496 001530
48 95	9.8422	02563	941260	.0000 70518 164040
94	9.8421	32045	777220	70540 333748
93	9.8420	61505	443472	70562 510660
92	9.8419	90942	932812	70584 694778
91	9.8419	20358	238034	70606 886110
48 90	9.8418	49751	351924	.0000 70629 084658
89	9.8417	79122	267266	70651 290428
88	9.8417	08470	976838	70673 503423
87	9.8416	37797	473415	70695 723650
86	9.8415	67101	749765	70717 951111
48 85	9.8414	96383	798654	.0000 70740 185812
84	9.8414	25643	612842	70762 427759
83	9.8413	54881	185083	70784 676955
82	9.8412	84096	508128	70806 933403
81	9.8412	13289	574725	70829 197112
48 80	9.8411	42460	377613	.0000 70851 468082



## Log Sines

c	log. sin.			$\Delta^1$
48 80	9.8411	42460	377613	.0000 70851 468082
79	9.8410	71608	909531	70873 746322
78	9.8410	00735	163209	70896 031832
77	9.8409	29839	131377	70918 324621
76	9.8408	58920	806756	70940 624691
48 75	9.8407	87980	182065	.0000 70962 932048
74	9.8407	17017	250017	70985 246696
73	9.8406	46032	003321	71007 568640
72	9.8405	75024	434681	71029 897884
71	9.8405	03994	536797	71052 234433
48 70	9.8404	32942	302364	.0000 71074 578293
69	9.8403	61867	724071	71096 929466
68	9.8402	90770	794605	71119 287960
67	9.8402	19651	506645	71141 653777
66	9.8401	48509	852868	71164 026922
48 65	9.8400	77345	825946	.0000 71186 407402
64	9.8400	06159	418544	71208 795219
63	9.8399	34950	623325	71231 190380
62	9.8398	63719	432945	71253 592887
61	9.8397	92465	840058	71276 002746
48 60	9.8397	21189	837312	.0000 71298 419964
59	9.8396	49891	417348	71320 844542
58	9.8395	78570	572806	71343 276488
57	9.8395	07227	296318	71365 715803
56	9.8394	35861	580515	71388 162496
48 55	9.8393	64473	418019	.0000 71410 616568
54	9.8392	93062	801451	71433 078027
53	9.8392	21629	723424	71455 546875
52	9.8391	50174	176549	71478 023118
51	9.8390	78696	153431	71500 506761
48 50	9.8390	07195	646670	.0000 71522 997809
49	9.8389	35672	648861	71545 496265
48	9.8388	64127	152596	71568 002136
47	9.8387	92559	150460	71590 515426
46	9.8387	20968	635034	71613 036138
48 45	9.8386	49355	598896	.0000 71635 564280
44	9.8385	77720	034616	71658 099854
43	9.8385	06061	934762	71680 642867
42	9.8384	34381	291895	71703 193322
41	9.8383	62678	098573	71725 751224
48 40	9.8382	90952	347349	.0000 71748 316579

## Log Sines

c	log. sin.			$\Delta^1$
48 40	9.8382	90952	347349	.0000 71748 316579
39	9.8382	19204	030770	71770 889391
38	9.8381	47433	141379	71793 469666
37	9.8380	75639	671713	71816 057405
36	9.8380	03823	614308	71838 652619
48 35	9.8379	31984	961689	.0000 71861 255306
34	9.8378	60123	706383	71883 865477
33	9.8377	88239	840906	71906 483133
32	9.8377	16333	357773	71929 108279
31	9.8376	44404	249494	71951 740922
48 30	9.8375	72452	508572	.0000 71974 381065
29	9.8375	00478	127507	71997 028714
28	9.8374	28481	098793	72019 683873
27	9.8373	56461	414920	72042 346546
26	9.8372	84419	068374	72065 016741
48 25	9.8372	12354	051633	.0000 72087 694459
24	9.8371	40266	357174	72110 379707
23	9.8370	68155	977467	72133 072491
22	9.8369	96022	904976	72155 772813
21	9.8369	23867	132163	72178 480680
48 20	9.8368	51688	651483	.0000 72201 196096
19	9.8367	79487	455387	72223 919067
18	9.8367	07263	536320	72246 649595
17	9.8366	35016	886725	72269 387688
16	9.8365	62747	499037	72292 133351
48 15	9.8364	90455	365686	.0000 72314 886586
14	9.8364	18140	479100	72337 647399
13	9.8363	45802	831701	72360 415798
12	9.8362	73442	415903	72383 191784
11	9.8362	01059	224119	72405 975363
48 10	9.8361	28653	248756	.0000 72428 766540
09	9.8360	56224	482216	72451 565322
08	9.8359	83772	916894	72474 371711
07	9.8359	11298	545183	72497 185712
06	9.8358	38801	359471	72520 007333
48 05	9.8357	66281	352138	.0000 72542 836575
04	9.8356	93738	515563	72565 673447
03	9.8356	21172	842116	72588 517950
02	9.8355	48584	324166	72611 370092
01	9.8354	75972	954074	72634 229876
48 00	9.8354	03338	724198	.0000 72657 097308

## Log Sines

c	log. sin.			$\Delta^1$		
48 00	9.8354	03338	724198	.0000	72657	097308
47 99	9.8353	30681	626890		72679	972392
98	9.8352	58001	654498		72702	855135
97	9.8351	85298	799363		72725	745540
96	9.8351	12573	053823		72748	643613
47 95	9.8350	39824	410210	.0000	72771	549357
94	9.8349	67052	860853		72794	462780
93	9.8348	94258	398073		72817	383886
92	9.8348	21441	014187		72840	312678
91	9.8347	48600	701509		72863	249164
47 90	9.8346	75737	452345	.0000	72886	193347
89	9.8346	02851	258998		72909	145233
88	9.8345	29942	113765		72932	104826
87	9.8344	57010	008939		72955	072131
86	9.8343	84054	936808		72978	047155
47 85	9.8343	11076	889653	.0000	73001	029901
84	9.8342	38075	859752		73024	020375
83	9.8341	65051	839377		73047	018582
82	9.8340	92004	820795		73070	024525
81	9.8340	18934	796270		73093	038213
47 80	9.8339	45841	758057	.0000	73116	059648
79	9.8338	72725	698409		73139	088836
78	9.8337	99586	609573		73162	125781
77	9.8337	26424	483792		73185	170490
76	9.8336	53239	313302		73208	222967
47 75	9.8335	80031	090335	.0000	73231	283217
74	9.8335	06799	807118		73254	351245
73	9.8334	33545	455873		73277	427057
72	9.8333	60268	028816		73300	510657
71	9.8332	86967	518159		73323	602049
47 70	9.8332	13643	916110	.0000	73346	701242
69	9.8331	40297	214868		73369	808237
68	9.8330	66927	406631		73392	923041
67	9.8329	93534	483590		73416	045660
66	9.8329	20118	437930		73439	176096
47 65	9.8328	46679	261834	.0000	73462	314357
64	9.8327	73216	947477		73485	460447
63	9.8326	99731	487030		73508	614372
62	9.8326	26222	872658		73531	776135
61	9.8325	52691	096523		73554	945744
47 60	9.8324	79136	150779	.0000	73578	123202

## Log Sines

c	log. sin.			$\Delta^1$
47 60	9.8324	79136	150779	.0000 73578 123202
59	9.8324	05558	027577	73601 308514
58	9.8323	31956	719063	73624 501687
57	9.8322	58332	217376	73647 702724
56	9.8321	84684	514652	73670 911633
47 55	9.8321	11013	603019	.0000 73694 128415
54	9.8320	37319	474604	73717 353080
53	9.8319	63602	121524	73740 585628
52	9.8318	89861	535896	73763 826069
51	9.8318	16097	709827	73787 074406
47 50	9.8317	42310	635421	.0000 73810 330642
49	9.8316	68500	304779	73833 594786
48	9.8315	94666	709993	73856 866842
47	9.8315	20809	843151	73880 146814
46	9.8314	46929	696337	73903 434707
47 45	9.8313	73026	261630	.0000 73926 730529
44	9.8312	99099	531101	73950 034282
43	9.8312	25149	496819	73973 345972
42	9.8311	51176	150847	73996 665607
41	9.8310	77179	485240	74019 993187
47 40	9.8310	03159	492053	.0000 74043 328723
39	9.8309	29116	163330	74066 672215
38	9.8308	55049	491115	74090 023672
37	9.8307	80959	467443	74113 383097
36	9.8307	06846	084346	74136 750496
47 35	9.8306	32709	333850	.0000 74160 125875
34	9.8305	58549	207975	74183 509238
33	9.8304	84365	698737	74206 900592
32	9.8304	10158	798145	74230 299939
31	9.8303	35928	498206	74253 707287
47 30	9.8302	61674	790919	.0000 74277 122642
29	9.8301	87397	668277	74300 546005
28	9.8301	13097	122272	74323 977387
27	9.8300	38773	144885	74347 416788
26	9.8299	64425	728097	74370 864217
47 25	9.8298	90054	863880	.0000 74394 319678
24	9.8298	15660	544202	74417 783175
23	9.8297	41242	761027	74441 254716
22	9.8296	66801	506311	74464 734303
21	9.8295	92336	772008	74488 221944
47 20	9.8295	17848	550064	.0000 74511 717644

## Log Sines

c	log. sin.			$\Delta^1$
47 20	9.8295	17848	550064	.0000 74511 717644
19	9.8294	43336	832420	74535 221407
18	9.8293	68801	611013	74558 733238
17	9.8292	94242	877775	74582 253145
16	9.8292	19660	624630	74605 781131
47 15	9.8291	45054	843499	.0000 74629 317202
14	9.8290	70425	526297	74652 861363
13	9.8289	95772	664934	74676 413620
12	9.8289	21096	251314	74699 973978
11	9.8288	46396	277336	74723 542442
47 10	9.8287	71672	734894	.0000 74747 119017
09	9.8286	96925	615877	74770 703710
08	9.8286	22154	912167	74794 296526
07	9.8285	47360	615641	74817 897468
06	9.8284	72542	718173	74841 506544
47 05	9.8283	97701	211629	.0000 74865 123758
04	9.8283	22836	087871	74888 749117
03	9.8282	47947	338754	74912 382623
02	9.8281	73034	956131	74936 024286
01	9.8280	98098	931845	74959 674108
47 00	9.8280	23139	257737	.0000 74983 332095
46 99	9.8279	48155	925642	75006 998254
98	9.8278	73148	927388	75030 672587
97	9.8277	98118	254801	75054 355104
96	9.8277	23063	899697	75078 045806
46 95	9.8276	47985	853891	.0000 75101 744702
94	9.8275	72884	109189	75125 451794
93	9.8274	97758	657395	75149 167091
92	9.8274	22609	490304	75172 890597
91	9.8273	47436	599707	75196 622315
46 90	9.8272	72239	977392	.0000 75220 362254
89	9.8271	97019	615138	75244 110418
88	9.8271	21775	504720	75267 866812
87	9.8270	46507	637908	75291 631442
86	9.8269	71216	006466	75315 404313
46 85	9.8268	95900	602153	.0000 75339 185432
84	9.8268	20561	416721	75362 974802
83	9.8267	45198	441919	75386 772431
82	9.8266	69811	669488	75410 578322
81	9.8265	94401	091166	75434 392482
46 80	9.8265	18966	698684	.0000 75458 214917

## Log Sines

c	log. sin.			$\Delta^1$		
46 80	9.8265	18966	698684	.0000	75458	214917
79	9.8264	43508	483767		75482	045631
78	9.8263	68026	438136		75505	884630
77	9.8262	92520	553506		75529	731920
76	9.8262	16990	821586		75553	587506
46 75	9.8261	41437	234080	.0000	75577	451394
74	9.8260	65859	782686		75601	323589
73	9.8259	90258	459097		75625	204097
72	9.8259	14633	255000		75649	092923
71	9.8258	38984	162077		75672	990073
46 70	9.8257	63311	172004	.0000	75696	895552
69	9.8256	87614	276452		75720	809366
68	9.8256	11893	467086		75744	731519
67	9.8255	36148	735567		75768	662021
66	9.8254	60380	073546		75792	600871
46 65	9.8253	84587	472675	.0000	75816	548081
64	9.8253	08770	924594		75840	503652
63	9.8252	32930	420942		75864	467591
62	9.8251	57065	953351		75888	439904
61	9.8250	81177	513447		75912	420597
46 60	9.8250	05265	092850	.0000	75936	409674
59	9.8249	29328	683176		75960	407142
58	9.8248	53368	276034		75984	413005
57	9.8247	77383	863029		76008	427271
56	9.8247	01375	435758		76032	449944
46 55	9.8246	25342	985814	.0000	76056	481029
54	9.8245	49286	504785		76080	520532
53	9.8244	73205	984253		76104	568461
52	9.8243	97101	415792		76128	624819
51	9.8243	20972	790973		76152	689611
46 50	9.8242	44820	101362	.0000	76176	762845
49	9.8241	68643	338517		76200	844525
48	9.8240	92442	493992		76224	934658
47	9.8240	16217	559334		76249	033249
46	9.8239	39968	526085		76273	140302
46 45	9.8238	63695	385783	.0000	76297	255825
44	9.8237	87398	129958		76321	379822
43	9.8237	11076	750136		76345	512301
42	9.8236	34731	237835		76369	653265
41	9.8235	58361	584570		76393	802721
46 40	9.8234	81967	781849	.0000	76417	960674

## Log Sines

c	log. sin.			$\Delta^1$
46 40	9.8234	81967	781849	.0000 76417 960674
39	9.8234	05549	821175	76442 127130
38	9.8233	29107	694045	76466 302096
37	9.8232	52641	391949	76490 485576
36	9.8231	76150	906373	76514 677575
46 35	9.8230	99636	228798	.0000 76538 878101
34	9.8230	23097	350697	76563 087159
33	9.8229	46534	263538	76587 304753
32	9.8228	69946	958785	76611 530891
31	9.8227	93335	427894	76635 765577
46 30	9.8227	16699	662317	.0000 76660 008818
29	9.8226	40039	653499	76684 260619
28	9.8225	63355	392880	76708 520985
27	9.8224	86646	871895	76732 789925
26	9.8224	09914	081970	76757 067439
46 25	9.8223	33157	014531	.0000 76781 353539
24	9.8222	56375	660992	76805 648227
23	9.8221	79570	012765	76829 951509
22	9.8221	02740	061256	76854 263392
21	9.8220	25885	797864	76878 583881
46 20	9.8219	49007	213983	.0000 76902 912982
19	9.8218	72104	301001	76927 250700
18	9.8217	95177	050301	76951 597043
17	9.8217	18225	453258	76975 952013
16	9.8216	41249	501245	77000 315621
46 15	9.8215	64249	185624	.0000 77024 687867
14	9.8214	87224	497757	77049 068762
13	9.8214	10175	428995	77073 458307
12	9.8213	33101	970688	77097 856513
11	9.8212	56004	114175	77122 263381
46 10	9.8211	78881	850794	.0000 77146 678920
09	9.8211	01735	171874	77171 103134
08	9.8210	24564	068740	77195 536031
07	9.8209	47368	532709	77219 977613
06	9.8208	70148	555096	77244 427891
46 05	9.8207	92904	127205	.0000 77268 886865
04	9.8207	15635	240340	77293 354547
03	9.8206	38341	885793	77317 830938
02	9.8205	61024	054855	77342 316046
01	9.8204	83681	738809	77366 809877
46 00	9.8204	06314	928932	.0000 77391 312436

## Log Sines

c	log. sin.			$\Delta^1$
46 00	9.8204	06314	928932	.0000 77391 312436
45 99	9.8203	28923	616496	77415 823729
98	9.8202	51507	792767	77440 343763
97	9.8201	74067	449004	77464 872542
96	9.8200	96602	576462	77489 410074
45 95	9.8200	19113	166388	.0000 77513 956362
94	9.8199	41599	210026	77538 511416
93	9.8198	64060	698610	77563 075239
92	9.8197	86497	623371	77587 647836
91	9.8197	08909	975535	77612 229216
45 90	9.8196	31297	746319	.0000 77636 819384
89	9.8195	53660	926935	77661 418343
88	9.8194	75999	508592	77686 026103
87	9.8193	98313	482489	77710 642668
86	9.8193	20602	839821	77735 268044
45 85	9.8192	42867	571777	.0000 77759 902237
84	9.8191	65107	669540	77784 545253
83	9.8190	87323	124287	77809 197098
82	9.8190	09513	927189	77833 857777
81	9.8189	31680	069412	77858 527299
45 80	9.8188	53821	542113	.0000 77883 205666
79	9.8187	75938	336447	77907 892887
78	9.8186	98030	443560	77932 588966
77	9.8186	20097	854594	77957 293910
76	9.8185	42140	560684	77982 007726
45 75	9.8184	64158	552958	.0000 78006 730417
74	9.8183	86151	822541	78031 461993
73	9.8183	08120	360548	78056 202456
72	9.8182	30064	158092	78080 951814
71	9.8181	51983	206278	78105 710073
45 70	9.8180	73877	496205	.0000 78130 477240
69	9.8179	95747	018965	78155 253319
68	9.8179	17591	765646	78180 038318
67	9.8178	39411	727328	78204 832240
66	9.8177	61206	895088	78229 635095
45 65	9.8176	82977	259993	.0000 78254 446885
64	9.8176	04722	813108	78279 267621
63	9.8175	26443	545487	78304 097304
62	9.8174	48139	448183	78328 935943
61	9.8173	69810	512240	78353 783543
45 60	9.8172	91456	728697	.0000 78378 640111



## Log Sines

c	log. sin.			$\Delta^1$
45 60	9.8172	91456	728697	.0000 78378 640111
59	9.8172	13078	088586	78403 505653
58	9.8171	34674	582933	78428 380173
57	9.8170	56246	202760	78453 263680
56	9.8169	77792	939080	78478 156179
45 55	9.8168	99314	782901	.0000 78503 057674
54	9.8168	20811	725227	78527 968175
53	9.8167	42283	757052	78552 887686
52	9.8166	63730	869366	78577 816212
51	9.8165	85153	053154	78602 753762
45 50	9.8165	06550	299392	.0000 78627 700339
49	9.8164	27922	599053	78652 655951
48	9.8163	49269	943102	78677 620604
47	9.8162	70592	322498	78702 594305
46	9.8161	91889	728193	78727 577057
45 45	9.8161	13162	151136	.0000 78752 568869
44	9.8160	34409	582267	78777 569748
43	9.8159	55632	012519	78802 579696
42	9.8158	76829	432823	78827 598724
41	9.8157	98001	834099	78852 626834
45 40	9.8157	19149	207265	.0000 78877 664035
39	9.8156	40271	543230	78902 710333
38	9.8155	61368	832897	78927 765732
37	9.8154	82441	067165	78952 830241
36	9.8154	03488	236924	78977 903865
45 35	9.8153	24510	333059	.0000 79002 986608
34	9.8152	45507	346451	79028 078481
33	9.8151	66479	267970	79053 179486
32	9.8150	87426	088484	79078 289630
31	9.8150	08347	798854	79103 408922
45 30	9.8149	29244	389932	.0000 79128 537366
29	9.8148	50115	852566	79153 674967
28	9.8147	70962	177599	79178 821734
27	9.8146	91783	355865	79203 977671
26	9.8146	12579	378194	79229 142786
45 25	9.8145	33350	235408	.0000 79254 317084
24	9.8144	54095	918324	79279 500573
23	9.8143	74816	417751	79304 693256
22	9.8142	95511	724495	79329 895143
21	9.8142	16181	829352	79355 106238
45 20	9.8141	36826	723114	.0000 79380 326548

## Log Sines

c	log. sin.			$\Delta^1$
45 20	9.8141	36826	723114	.0000 79380 326548
19	9.8140	57446	396566	79405 556080
18	9.8139	78040	840486	79430 794838
17	9.8138	98610	045648	79456 042831
16	9.8138	19154	002817	79481 300063
45 15	9.8137	39672	702754	.0000 79506 566543
14	9.8136	60166	136211	79531 842275
13	9.8135	80634	293936	79557 127265
12	9.8135	01077	166671	79582 421523
11	9.8134	21494	745148	79607 725051
45 10	9.8133	41887	020097	.0000 79633 037857
09	9.8132	62253	982240	79658 359949
08	9.8131	82595	622291	79683 691330
07	9.8131	02911	930961	79709 032010
06	9.8130	23202	898951	79734 381993
45 05	9.8129	43468	516958	.0000 79759 741285
04	9.8128	63708	775673	79785 109894
03	9.8127	83923	665779	79810 487826
02	9.8127	04113	177953	79835 875087
01	9.8126	24277	302866	79861 271684
45 00	9.8125	44416	031182	.0000 79886 677623
44 99	9.8124	64529	353559	79912 092909
98	9.8123	84617	260650	79937 517550
97	9.8123	04679	743100	79962 951554
96	9.8122	24716	791546	79988 394924
44 95	9.8121	44728	396622	.0000 80013 847668
94	9.8120	64714	548954	80039 309794
93	9.8119	84675	239160	80064 781305
92	9.8119	04610	457855	80090 262211
91	9.8118	24520	195644	80115 752516
44 90	9.8117	44404	443128	.0000 80141 252227
89	9.8116	64263	190901	80166 761351
88	9.8115	84096	429550	80192 279895
87	9.8115	03904	149655	80217 807864
86	9.8114	23686	341791	80243 345265
44 85	9.8113	43442	996526	.0000 80268 892106
84	9.8112	63174	104420	80294 448390
83	9.8111	82879	656030	80320 014128
82	9.8111	02559	641902	80345 589322
81	9.8110	22214	052580	80371 173983
44 80	9.8109	41842	878597	.0000 80396 768113

## Log Sines

c	log. sin.			$\Delta^1$
44 80	9.8109	41842	878597	.0000 80396 768113
79	9.8108	61446	110484	80422 371722
78	9.8107	81023	738762	80447 984815
77	9.8107	00575	753947	80473 607399
76	9.8106	20102	146548	80499 239481
44 75	9.8105	39602	907067	.0000 80524 881065
74	9.8104	59078	026002	80550 532161
73	9.8103	78527	493841	80576 192773
72	9.8102	97951	301068	80601 862910
71	9.8102	17349	438158	80627 542576
44 70	9.8101	36721	895582	.0000 80653 231779
69	9.8100	56068	663803	80678 930525
68	9.8099	75389	733278	80704 638821
67	9.8098	94685	094457	80730 356675
66	9.8098	13954	737782	80756 084090
44 65	9.8097	33198	653692	.0000 80781 821075
64	9.8096	52416	832617	80807 567637
63	9.8095	71609	264980	80833 323782
62	9.8094	90775	941198	80859 089516
61	9.8094	09916	851682	80884 864846
44 60	9.8093	29031	986836	.0000 80910 649780
59	9.8092	48121	337056	80936 444322
58	9.8091	67184	892734	80962 248482
57	9.8090	86222	644252	80988 062262
56	9.8090	05234	581990	81013 885674
44 55	9.8089	24220	696316	.0000 81039 718720
54	9.8088	43180	977596	81065 561410
53	9.8087	62115	416186	81091 413749
52	9.8086	81024	002437	81117 275745
51	9.8085	99906	726692	81143 147402
44 50	9.8085	18763	579290	.0000 81169 028730
49	9.8084	37594	550560	81194 919733
48	9.8083	56399	630827	81220 820420
47	9.8082	75178	810407	81246 730796
46	9.8081	93932	079611	81272 650869
44 45	9.8081	12659	428742	.0000 81298 580644
44	9.8080	31360	848098	81324 520129
43	9.8079	50036	327969	81350 469331
42	9.8078	68685	858638	81376 428256
41	9.8077	87309	430382	81402 396911
44 40	9.8077	05907	033471	.0000 81428 375302

## Log Sines

c	log. sin.			$\Delta^1$		
44 40	9.8077	05907	033471	.0000	81428	375302
39	9.8076	24478	658169		81454	363438
38	9.8075	43024	294731		81480	361323
37	9.8074	61543	933408		81506	368966
36	9.8073	80037	564442		81532	386372
44 35	9.8072	98505	178070	.0000	81558	413549
34	9.8072	16946	764521		81584	450503
33	9.8071	35362	314018		81610	497242
32	9.8070	53751	816776		81636	553771
31	9.8069	72115	263005		81662	620099
44 30	9.8068	90452	642906	.0000	81688	696230
29	9.8068	08763	946676		81714	782174
28	9.8067	27049	164502		81740	877935
27	9.8066	45308	286567		81766	983523
26	9.8065	63541	303044		81793	098941
44 25	9.8064	81748	204103	.0000	81819	224198
24	9.8063	99928	979905		81845	359301
23	9.8063	18083	620604		81871	504257
22	9.8062	36212	116347		81897	659072
21	9.8061	54314	457275		81923	823753
44 20	9.8060	72390	633522	.0000	81949	998307
19	9.8059	90440	635215		81976	182741
18	9.8059	08464	452474		82002	377062
17	9.8058	26462	075412		82028	581277
16	9.8057	44433	494135		82054	795393
44 15	9.8056	62378	698742	.0000	82081	019416
14	9.8055	80297	679326		82107	253353
13	9.8054	98190	425973		82133	497212
12	9.8054	16056	928761		82159	750999
11	9.8053	33897	177762		82186	014722
44 10	9.8052	51711	163040	.0000	82212	288386
09	9.8051	69498	874654		82238	572000
08	9.8050	87260	302654		82264	865570
07	9.8050	04995	437084		82291	169103
06	9.8049	22704	267981		82317	482606
44 05	9.8048	40386	785375	.0000	82343	806086
04	9.8047	58042	979289		82370	139549
03	9.8046	75672	839740		82396	483005
02	9.8045	93276	356735		82422	836457
01	9.8045	10853	520278		82449	199914
44 00	9.8044	28404	320364	.0000	82475	573384

## Log Sines

c	log. sin.			$\Delta^1$		
44 00	9.8044	28404	320364	.0000	82475	573384
43 99	9.8043	45928	746980		82501	956873
98	9.8042	63426	790107		82528	350387
97	9.8041	80898	439720		82554	753934
96	9.8040	98343	685786		82581	167522
43 95	9.8040	15762	518264	.0000	82607	591156
94	9.8039	33154	927108		82634	024844
93	9.8038	50520	902264		82660	468594
92	9.8037	67860	433670		82686	922411
91	9.8036	85173	511259		82713	386304
43 90	9.8036	02460	124955	.0000	82739	860279
89	9.8035	19720	264676		82766	344343
88	9.8034	36953	920333		82792	838504
87	9.8033	54161	081829		82819	342768
86	9.8032	71341	739061		82845	857143
43 85	9.8031	88495	881918	.0000	82872	381636
84	9.8031	05623	500282		82898	916253
83	9.8030	22724	584029		82925	461002
82	9.8029	39799	123027		82952	015890
81	9.8028	56847	107137		82978	580925
43 80	9.8027	73868	526212	.0000	83005	156112
79	9.8026	90863	370100		83031	741460
78	9.8026	07831	628640		83058	336976
77	9.8025	24773	291664		83084	942665
76	9.8024	41688	348999		83111	558538
43 75	9.8023	58576	790461	.0000	83138	184598
74	9.8022	75438	605863		83164	820856
73	9.8021	92273	785007		83191	467316
72	9.8021	09082	317691		83218	123987
71	9.8020	25864	193704		83244	790875
43 70	9.8019	42619	402829	.0000	83271	467989
69	9.8018	59347	934840		83298	155335
68	9.8017	76049	779505		83324	852919
67	9.8016	92724	926586		83351	560751
66	9.8016	09373	365835		83378	278836
43 65	9.8015	25995	086999	.0000	83405	007182
64	9.8014	42590	079817		83431	745796
63	9.8013	59158	334021		83458	494685
62	9.8012	75699	839336		83485	253858
61	9.8011	92214	585478		83512	023320
43 60	9.8011	08702	562158	.0000	83538	803080

## Log Sines

c	log. sin.			$\Delta^1$		
43 60	9.8011	08702	562158	.0000	83538	803080
59	9.8010	25163	759078		83565	593143
58	9.8009	41598	165935		83592	393519
57	9.8008	58005	772416		83619	204213
56	9.8007	74386	568203		83646	025234
43 55	9.8006	90740	542969	.0000	83672	856588
54	9.8006	07067	686381		83699	698284
53	9.8005	23367	988097		83726	550327
52	9.8004	39641	437770		83753	412725
51	9.8003	55888	025045		83780	285487
43 50	9.8002	72107	739558	.0000	83807	168619
49	9.8001	88300	570939		83834	062128
48	9.8001	04466	508811		83860	966022
47	9.8000	20605	542789		83887	880308
46	9.7999	36717	662481		83914	804994
43 45	9.7998	52802	857487	.0000	83941	740086
44	9.7997	68861	117401		83968	685592
43	9.7996	84892	431809		83995	641521
42	9.7996	00896	790288		84022	607878
41	9.7995	16874	182410		84049	584671
43 40	9.7994	32824	597739	.0000	84076	571909
39	9.7993	48748	025830		84103	569597
38	9.7992	64644	456233		84130	577743
37	9.7991	80513	878490		84157	596357
36	9.7990	96356	282133		84184	625442
43 35	9.7990	12171	656691	.0000	84211	665010
34	9.7989	27959	991681		84238	715065
33	9.7988	43721	276616		84265	775615
32	9.7987	59455	501001		84292	846670
31	9.7986	75162	654331		84319	928234
43 30	9.7985	90842	726097	.0000	84347	020317
29	9.7985	06495	705780		84374	122924
28	9.7984	22121	582856		84401	236066
27	9.7983	37720	346790		84428	359747
26	9.7982	53291	987043		84455	493976
43 25	9.7981	68836	493067	.0000	84482	638761
24	9.7980	84353	854306		84509	794109
23	9.7979	99844	060197		84536	960027
22	9.7979	15307	100170		84564	136523
21	9.7978	30742	963647		84591	323604
43 20	9.7977	46151	640043	.0000	84618	521279

## Log Sines

c	log. sin.			$\Delta^1$		
43 20	9.7977	46151	640043	.0000	84618	521279
19	9.7976	61533	118764		84645	729555
18	9.7975	76887	389209		84672	948437
17	9.7974	92214	440772		84700	177936
16	9.7974	07514	262836		84727	418057
43 15	9.7973	22786	844779	.0000	84754	668811
14	9.7972	38032	175968		84781	930201
13	9.7971	53250	245767		84809	202238
12	9.7970	68441	043529		84836	484929
11	9.7969	83604	558600		84863	778280
43 10	9.7968	98740	780320	.0000	84891	082300
09	9.7968	13849	698020		84918	396996
08	9.7967	28931	301024		84945	722377
07	9.7966	43985	578647		84973	058448
06	9.7965	59012	520199		85000	405219
43 05	9.7964	74012	114980	.0000	85027	762696
04	9.7963	88984	352284		85055	130888
03	9.7963	03929	221396		85082	509803
02	9.7962	18846	711593		85109	899446
01	9.7961	33736	812147		85137	299827
43 00	9.7960	48599	512320	.0000	85164	710953
42 99	9.7959	63434	801367		85192	132831
98	9.7958	78242	668536		85219	565471
97	9.7957	93023	103065		85247	008878
96	9.7957	07776	094187		85274	463061
42 95	9.7956	22501	631126	.0000	85301	928027
94	9.7955	37199	703099		85329	403785
93	9.7954	51870	299314		85356	890342
92	9.7953	66513	408972		85384	387704
91	9.7952	81129	021268		85411	895882
42 90	9.7951	95717	125386	.0000	85439	414882
89	9.7951	10277	710504		85466	944711
88	9.7950	24810	765793		85494	485378
87	9.7949	39316	280415		85522	036890
86	9.7948	53794	243525		85549	599256
42 85	9.7947	68244	644269	.0000	85577	172482
84	9.7946	82667	471787		85604	756578
83	9.7945	97062	715209		85632	351548
82	9.7945	11430	363661		85659	957405
81	9.7944	25770	406256		85687	574152
42 80	9.7943	40082	832104	.0000	85715	201800

## Log Sines

c	log. sin.			$\Delta^1$		
42 80	9.7943	40082	832104	.0000	85715	201800
79	9.7942	54367	630304		85742	840356
78	9.7941	68624	789948		85770	489826
77	9.7940	82854	300122		85798	150221
76	9.7939	97056	149901		85825	821547
42 75	9.7939	11230	328354	.0000	85853	503811
74	9.7938	25376	824543		85881	197022
73	9.7937	39495	627521		85908	901189
72	9.7936	53586	726332		85936	616317
71	9.7935	67650	110015		85964	342417
42 70	9.7934	81685	767598	.0000	85992	079495
69	9.7933	95693	688103		86019	827558
68	9.7933	09673	860545		86047	586617
67	9.7932	23626	273928		86075	356677
66	9.7931	37550	917251		86103	137748
42 65	9.7930	51447	779503	.0000	86130	929836
64	9.7929	65316	849667		86158	732950
63	9.7928	79158	116717		86186	547097
62	9.7927	92971	569620		86214	372288
61	9.7927	06757	197332		86242	208527
42 60	9.7926	20514	988805	.0000	86270	055823
59	9.7925	34244	932982		86297	914186
58	9.7924	47947	018796		86325	783623
57	9.7923	61621	235173		86353	664140
56	9.7922	75267	571033		86381	555747
42 55	9.7921	88886	015286	.0000	86409	458452
54	9.7921	02476	556834		86437	372262
53	9.7920	16039	184572		86465	297186
52	9.7919	29573	887386		86493	233231
51	9.7918	43080	654155		86521	180407
42 50	9.7917	56559	473748	.0000	86549	138719
49	9.7916	70010	335029		86577	108177
48	9.7915	83433	226852		86605	088790
47	9.7914	96828	138062		86633	080563
46	9.7914	10195	057499		86661	083507
42 45	9.7913	23533	973992	.0000	86689	097628
44	9.7912	36844	876364		86717	122936
43	9.7911	50127	753428		86745	159437
42	9.7910	63382	593991		86773	207141
41	9.7909	76609	386850		86801	266055
42 40	9.7908	89808	120795	.0000	86829	336187



## Log Sines

c	log. sin.			$\Delta^1$
42 40	9.7908	89808	120795	.0000 86829 336187
39	9.7908	02978	784608	86857 417546
38	9.7907	16121	367062	86885 510140
37	9.7906	29235	856922	86913 613975
36	9.7905	42322	242947	86941 729062
42 35	9.7904	55380	513885	.0000 86969 855409
34	9.7903	68410	658476	86997 993021
33	9.7902	81412	665455	87026 141911
32	9.7901	94386	523544	87054 302082
31	9.7901	07332	221462	87082 473545
42 30	9.7900	20249	747917	.0000 87110 656309
29	9.7899	33139	091608	87138 850381
28	9.7898	46000	241227	87167 055769
27	9.7897	58833	185458	87195 272481
26	9.7896	71637	912977	87223 500526
42 25	9.7895	84414	412451	.0000 87251 739911
24	9.7894	97162	672540	87279 990647
23	9.7894	09882	681893	87308 252739
22	9.7893	22574	429154	87336 526196
21	9.7892	35237	902958	87364 811029
42 20	9.7891	47873	091929	.0000 87393 107242
19	9.7890	60479	984687	87421 414847
18	9.7889	73058	569840	87449 733850
17	9.7888	85608	835990	87478 064259
16	9.7887	98130	771731	87506 406085
42 15	9.7887	10624	365646	.0000 87534 759334
14	9.7886	23089	606312	87563 124014
13	9.7885	35526	482298	87591 500134
12	9.7884	47934	982164	87619 887704
11	9.7883	60315	094460	87648 286730
42 10	9.7882	72666	807730	.0000 87676 697221
09	9.7881	84990	110509	87705 119186
08	9.7880	97284	991323	87733 552633
07	9.7880	09551	438690	87761 997569
06	9.7879	21789	441121	87790 454005
42 05	9.7878	33998	987116	.0000 87818 921947
04	9.7877	46180	065169	87847 401404
03	9.7876	58332	663765	87875 892387
02	9.7875	70456	771378	87904 394899
01	9.7874	82552	376479	87932 908955
42 00	9.7873	94619	467524	.0000 87961 434557

## Log Sines

c	log. sin.			$\Delta^1$
42 00	9.7873	94619	467524	.0000 87961 434557
41 99	9.7873	06658	032967	87989 971718
98	9.7872	18668	061249	88018 520444
97	9.7871	30649	540805	88047 080746
96	9.7870	42602	460059	88075 652628
41 95	9.7869	54526	807431	.0000 88104 236104
94	9.7868	66422	571327	88132 831178
93	9.7867	78289	740149	88161 437860
92	9.7866	90128	302289	88190 056160
91	9.7866	01938	246129	88218 686084
41 90	9.7865	13719	560045	.0000 88247 327642
89	9.7864	25472	232403	88275 980842
88	9.7863	37196	251561	88304 645693
87	9.7862	48891	605868	88333 322202
86	9.7861	60558	283666	88362 010380
41 85	9.7860	72196	273286	.0000 88390 710234
84	9.7859	83805	563052	88419 421772
83	9.7858	95386	141280	88448 145004
82	9.7858	06937	996276	88476 879938
81	9.7857	18461	116338	88505 626582
41 80	9.7856	29955	489756	.0000 88534 384945
79	9.7855	41421	104811	88563 155036
78	9.7854	52857	949775	88591 936863
77	9.7853	64266	012912	88620 730436
76	9.7852	75645	282476	88649 535760
41 75	9.7851	86995	746716	.0000 88678 352848
74	9.7850	98317	393868	88707 181707
73	9.7850	09610	212161	88736 022343
72	9.7849	20874	189818	88764 874770
71	9.7848	32109	315048	88793 738991
41 70	9.7847	43315	576057	.0000 88822 615019
69	9.7846	54492	961038	88851 502860
68	9.7845	65641	458178	88880 402524
67	9.7844	76761	055654	88909 314019
66	9.7843	87851	741635	88938 237355
41 65	9.7842	98913	504280	.0000 88967 172539
64	9.7842	09946	331741	88996 119580
63	9.7841	20950	212161	89025 078488
62	9.7840	31925	133673	89054 049270
61	9.7839	42871	084403	89083 031937
41 60	9.7838	53788	052466	.0000 89112 026495

## Log Sines

c	log. sin.			$\Delta^1$
41 60	9.7838	53788	052466	.0000 89112 026495
59	9.7837	64676	025971	89141 032955
58	9.7836	75534	993016	89170 051324
57	9.7835	86364	941692	89199 081612
56	9.7834	97165	860080	89228 123828
41 55	9.7834	07937	736252	.0000 89257 177980
54	9.7833	18680	558272	89286 244076
53	9.7832	29394	314196	89315 322127
52	9.7831	40078	992069	89344 412140
51	9.7830	50734	579929	89373 514125
41 50	9.7829	61361	065804	.0000 89402 628090
49	9.7828	71958	437714	89431 754044
48	9.7827	82526	683670	89460 891995
47	9.7826	93065	791675	89490 041955
46	9.7826	03575	749720	89519 203929
41 45	9.7825	14056	545791	.0000 89548 377928
44	9.7824	24508	167863	89577 563960
43	9.7823	34930	603903	89606 762035
42	9.7822	45323	841868	89635 972161
41	9.7821	55687	869707	89665 194347
41 40	9.7820	66022	675360	.0000 89694 428602
39	9.7819	76328	246758	89723 674935
38	9.7818	86604	571823	89752 933354
37	9.7817	96851	638469	89782 203870
36	9.7817	07069	434599	89811 486491
41 35	9.7816	17257	948108	.0000 89840 781225
34	9.7815	27417	166883	89870 088082
33	9.7814	37547	078801	89899 407070
32	9.7813	47647	671731	89928 738199
31	9.7812	57718	933532	89958 081478
41 30	9.7811	67760	852054	.0000 89987 436915
29	9.7810	77773	415139	90016 804520
28	9.7809	87756	610619	90046 184302
27	9.7808	97710	426317	90075 576269
26	9.7808	07634	850048	90104 980431
41 25	9.7807	17529	869617	.0000 90134 396796
24	9.7806	27395	472821	90163 825376
23	9.7805	37231	647445	90193 266175
22	9.7804	47038	381270	90222 719208
21	9.7803	56815	662062	90252 184478
41 20	9.7802	66563	477584	.0000 90281 661999

## Log Sines

c	log. sin.			$\Delta^1$
41 20	9.7802	66563	477584	.0000 90281 661999
19	9.7801	76281	815585	90311 151778
18	9.7800	85970	663807	90340 653823
17	9.7799	95630	009984	90370 168146
16	9.7799	05259	841838	90399 694754
41 15	9.7798	14860	147084	.0000 90429 233656
14	9.7797	24430	913428	90458 784863
13	9.7796	33972	128565	90488 348382
12	9.7795	43483	780183	90517 924224
11	9.7794	52965	855959	90547 512396
41 10	9.7793	62418	343563	.0000 90577 112909
09	9.7792	71841	230654	90606 725772
08	9.7791	81234	504882	90636 350994
07	9.7790	90598	153888	90665 988583
06	9.7789	99932	165305	90695 638551
41 05	9.7789	09236	526754	.0000 90725 300903
04	9.7788	18511	225851	90754 975653
03	9.7787	27756	250198	90784 662806
02	9.7786	36971	587392	90814 362375
01	9.7785	46157	225017	90844 074366
41 00	9.7784	55313	150651	.0000 90873 798790
40 99	9.7783	64439	351861	90903 535656
98	9.7782	73535	816205	90933 284974
97	9.7781	82602	531231	90963 046751
96	9.7780	91639	484480	90992 821000
40 95	9.7780	00646	663480	.0000 91022 607726
94	9.7779	09624	055754	91052 406942
93	9.7778	18571	648812	91082 218654
92	9.7777	27489	430158	91112 042875
91	9.7776	36377	387283	91141 879612
40 90	9.7775	45235	507671	.0000 91171 728874
89	9.7774	54063	778797	91201 590672
88	9.7773	62862	188125	91231 465014
87	9.7772	71630	723111	91261 351911
86	9.7771	80369	371200	91291 251370
40 85	9.7770	89078	119830	.0000 91321 163402
84	9.7769	97756	956428	91351 088017
83	9.7769	06405	868411	91381 025222
82	9.7768	15024	843189	91410 975030
81	9.7767	23613	868159	91440 937446
40 80	9.7766	32172	930713	.0000 91470 912484

## Log Sines

c	log. sin.			$\Delta^1$		
40 80	9.7766	32172	930713	.0000	91470	912484
79	9.7765	40702	018229		91500	900151
78	9.7764	49201	118078		91530	900456
77	9.7763	57670	217622		91560	913409
76	9.7762	66109	304213		91590	939021
40 75	9.7761	74518	365192	.0000	91620	977299
74	9.7760	82897	387893		91651	028255
73	9.7759	91246	359638		91681	091896
72	9.7758	99565	267742		91711	168233
71	9.7758	07854	099509		91741	257276
40 70	9.7757	16112	842233	.0000	91771	359033
69	9.7756	24341	483200		91801	473515
68	9.7755	32540	009685		91831	600731
67	9.7754	40708	408954		91861	740690
66	9.7753	48846	668264		91891	893402
40 65	9.7752	56954	774862	.0000	91922	058877
64	9.7751	65032	715985		91952	237125
63	9.7750	73080	478860		91982	428153
62	9.7749	81098	050707		92012	631974
61	9.7748	89085	418733		92042	848596
40 60	9.7747	97042	570137	.0000	92073	078027
59	9.7747	04969	492110		92103	320281
58	9.7746	12866	171829		92133	575363
57	9.7745	20732	596466		92163	843286
56	9.7744	28568	753180		92194	124057
40 55	9.7743	36374	629123	.0000	92224	417688
54	9.7742	44150	211435		92254	724188
53	9.7741	51895	487247		92285	043565
52	9.7740	59610	443682		92315	375832
51	9.7739	67295	067850		92345	720995
40 50	9.7738	74949	346855	.0000	92376	079067
49	9.7737	82573	267788		92406	450055
48	9.7736	90166	817733		92436	833972
47	9.7735	97729	983761		92467	230823
46	9.7735	05262	752938		92497	640623
40 45	9.7734	12765	112315	.0000	92528	063379
44	9.7733	20237	048936		92558	499100
43	9.7732	27678	549836		92588	947797
42	9.7731	35089	602039		92619	409481
41	9.7730	42470	192558		92649	884160
40 40	9.7729	49820	308398	.0000	92680	371843

## Log Sines

c		log. sin.			$\Delta^1$		
40	40	9.7729	49820	308398	.0000	92680	371843
	39	9.7728	57139	936555		92710	872543
	38	9.7727	64429	064012		92741	386268
	37	9.7726	71687	677744		92771	913027
	36	9.7725	78915	764717		92802	452830
40	35	9.7724	86113	311887	.0000	92833	005690
	34	9.7723	93280	306197		92863	571612
	33	9.7723	00416	734585		92894	150610
	32	9.7722	07522	583975		92924	742692
	31	9.7721	14597	841283		92955	347867
40	30	9.7720	21642	493416	.0000	92985	966148
	29	9.7719	28656	527268		93016	597542
	28	9.7718	35639	929726		93047	242060
	27	9.7717	42592	687666		93077	899713
	26	9.7716	49514	787953		93108	570508
40	25	9.7715	56406	217445	.0000	93139	254458
	24	9.7714	63266	962987		93169	951572
	23	9.7713	70097	011415		93200	661860
	22	9.7712	76896	349555		93231	385331
	21	9.7711	83664	964224		93262	121996
40	20	9.7710	90402	842228	.0000	93292	871865
	19	9.7709	97109	970363		93323	634948
	18	9.7709	03786	335415		93354	411256
	17	9.7708	10431	924159		93385	200796
	16	9.7707	17046	723363		93416	003581
40	15	9.7706	23630	719782	.0000	93446	819620
	14	9.7705	30183	900162		93477	648923
	13	9.7704	36706	251239		93508	491501
	12	9.7703	43197	759738		93539	347363
	11	9.7702	49658	412375		93570	216519
40	10	9.7701	56088	195856	.0000	93601	098980
	09	9.7700	62487	096876		93631	994755
	08	9.7699	68855	102121		93662	903857
	07	9.7698	75192	198264		93693	826291
	06	9.7697	81498	371973		93724	762073
40	05	9.7696	87773	609900	.0000	93755	711208
	04	9.7695	94017	898692		93786	673710
	03	9.7695	00231	224982		93817	649588
	02	9.7694	06413	575394		93848	638850
	01	9.7693	12564	936544		93879	641510
40	00	9.7692	18685	295034	.0000	93910	657575

## Log Sines

c	log. sin.			$\Delta^1$
40 00	9.7692	18685	295034	.0000 93910 657575
39 99	9.7691	24774	637459	93941 687058
98	9.7690	30832	950401	93972 729966
97	9.7689	36860	220435	94003 786313
96	9.7688	42856	434122	94034 856106
39 95	9.7687	48821	578016	.0000 94065 939356
94	9.7686	54755	638660	94097 036076
93	9.7685	60658	602584	94128 146272
92	9.7684	66530	456312	94159 269958
91	9.7683	72371	186354	94190 407142
39 90	9.7682	78180	779212	.0000 94221 557835
89	9.7681	83959	221377	94252 722048
88	9.7680	89706	499329	94283 899791
87	9.7679	95422	599538	94315 091072
86	9.7679	01107	508466	94346 295906
39 85	9.7678	06761	212560	.0000 94377 514300
84	9.7677	12383	698260	94408 746264
83	9.7676	17974	951996	94439 991811
82	9.7675	23534	960185	94471 250950
81	9.7674	29063	709235	94502 523691
39 80	9.7673	34561	185544	.0000 94533 810046
79	9.7672	40027	375498	94565 110022
78	9.7671	45462	265476	94596 423633
77	9.7670	50865	841843	94627 750889
76	9.7669	56238	090954	94659 091799
39 75	9.7668	61578	999155	.0000 94690 446374
74	9.7667	66888	552781	94721 814624
73	9.7666	72166	738157	94753 196561
72	9.7665	77413	541596	94784 592195
71	9.7664	82628	949401	94816 001535
39 70	9.7663	87812	947866	.0000 94847 424594
69	9.7662	92965	523272	94878 861380
68	9.7661	98086	661892	94910 311906
67	9.7661	03176	349986	94941 776180
66	9.7660	08234	573806	94973 254215
39 65	9.7659	13261	319591	.0000 95004 746020
64	9.7658	18256	573571	95036 251607
63	9.7657	23220	321964	95067 770984
62	9.7656	28152	550980	95099 304164
61	9.7655	33053	246816	95130 851157
39 60	9.7654	37922	395659	.0000 95162 411974

## Log Sines

c	log. sin.			$\Delta^1$		
39 60	9.7654	37922	395659	.0000	95162	411974
59	9.7653	42759	983685		95193	986625
58	9.7652	47565	997060		95225	575121
57	9.7651	52340	421939		95257	177472
56	9.7650	57083	244467		95288	793690
39 55	9.7649	61794	450777	.0000	95320	423784
54	9.7648	66474	026993		95352	067766
53	9.7647	71121	959227		95383	725646
52	9.7646	75738	233581		95415	397436
51	9.7645	80322	836145		95447	083145
39 50	9.7644	84875	753000	.0000	95478	782785
49	9.7643	89396	970215		95510	496366
48	9.7642	93886	473849		95542	223899
47	9.7641	98344	249950		95573	965394
46	9.7641	02770	284556		95605	720864
39 45	9.7640	07164	563692	.0000	95637	490318
44	9.7639	11527	073374		95669	273767
43	9.7638	15857	799607		95701	071222
42	9.7637	20156	728385		95732	882694
41	9.7636	24423	845691		95764	708193
39 40	9.7635	28659	137498	.0000	95796	547732
39	9.7634	32862	589766		95828	401319
38	9.7633	37034	188447		95860	268967
37	9.7632	41173	919480		95892	150686
36	9.7631	45281	768794		95924	046487
39 35	9.7630	49357	722307	.0000	95955	956382
34	9.7629	53401	765925		95987	880379
33	9.7628	57413	885546		96019	818492
32	9.7627	61394	067054		96051	770730
31	9.7626	65342	296324		96083	737106
39 30	9.7625	69258	559218	.0000	96115	717628
29	9.7624	73142	841590		96147	712310
28	9.7623	76995	129280		96179	721162
27	9.7622	80815	408118		96211	744193
26	9.7621	84603	663925		96243	781416
39 25	9.7620	88359	882509	.0000	96275	832843
24	9.7619	92084	049666		96307	898483
23	9.7618	95776	151183		96339	978347
22	9.7617	99436	172836		96372	072447
21	9.7617	03064	100389		96404	180795
39 20	9.7616	06659	919594	.0000	96436	303399



## Log Sines

c	log. sin.			$\Delta^1$
39 20	9.7616	06659	919594	.0000 96436 303399
19	9.7615	10223	616195	96468 440274
18	9.7614	13755	175921	96500 591428
17	9.7613	17254	584493	96532 756873
16	9.7612	20721	827620	96564 936620
39 15	9.7611	24156	891000	.0000 96597 130682
14	9.7610	27559	760318	96629 339068
13	9.7609	30930	421250	96661 561789
12	9.7608	34268	859461	96693 798857
11	9.7607	37575	060604	96726 050284
39 10	9.7606	40849	010320	.0000 96758 316079
09	9.7605	44090	694241	96790 596256
08	9.7604	47300	097985	96822 890824
07	9.7603	50477	207161	96855 199794
06	9.7602	53622	007367	96887 523179
39 05	9.7601	56734	484188	.0000 96919 860990
04	9.7600	59814	623198	96952 213236
03	9.7599	62862	409962	96984 579932
02	9.7598	65877	830030	97016 961085
01	9.7597	68860	868945	97049 356710
39 00	9.7596	71811	512235	.0000 97081 766816
38 99	9.7595	74729	745419	97114 191415
98	9.7594	77615	554004	97146 630520
97	9.7593	80468	923484	97179 084138
96	9.7592	83289	839346	97211 552286
38 95	9.7591	86078	287060	.0000 97244 034970
94	9.7590	88834	252090	97276 532206
93	9.7589	91557	719884	97309 044001
92	9.7588	94248	675883	97341 570370
91	9.7587	96907	105513	97374 111323
38 90	9.7586	99532	994190	.0000 97406 666871
89	9.7586	02126	327319	97439 237026
88	9.7585	04687	090293	97471 821799
87	9.7584	07215	268494	97504 421202
86	9.7583	09710	847292	97537 035247
38 85	9.7582	12173	812045	.0000 97569 663944
84	9.7581	14604	148101	97602 307304
83	9.7580	17001	840797	97634 965342
82	9.7579	19366	875455	97667 638066
81	9.7578	21699	237389	97700 325488
38 80	9.7577	23998	911901	.0000 97733 027621

## Log Sines

c	log. sin.			$\Delta^1$
38 80	9.7577	23998	911901	.0000 97733 027621
79	9.7576	26265	884280	97765 744476
78	9.7575	28500	139804	97798 476064
77	9.7574	30701	663740	97831 222398
76	9.7573	32870	441342	97863 983487
38 75	9.7572	35006	457855	.0000 97896 759344
74	9.7571	37109	698511	97929 549982
73	9.7570	39180	148529	97962 355411
72	9.7569	41217	793118	97995 175642
71	9.7568	43222	617476	98028 010689
38 70	9.7567	45194	606787	.0000 98060 860561
69	9.7566	47133	746226	98093 725272
68	9.7565	49040	020954	98126 604832
67	9.7564	50913	416122	98159 499253
66	9.7563	52753	916869	98192 408548
38 65	9.7562	54561	508321	.0000 98225 332726
64	9.7561	56336	175595	98258 271802
63	9.7560	58077	903793	98291 225786
62	9.7559	59786	678007	98324 194690
61	9.7558	61462	483317	98357 178524
38 60	9.7557	63105	304793	.0000 98390 177304
59	9.7556	64715	127489	98423 191038
58	9.7555	66291	936451	98456 219738
57	9.7554	67835	716713	98489 263419
56	9.7553	69346	453294	98522 322089
38 55	9.7552	70824	131205	.0000 98555 395762
54	9.7551	72268	735443	98588 484450
53	9.7550	73680	250993	98621 588164
52	9.7549	75058	662829	98654 706915
51	9.7548	76403	955914	98687 840717
38 50	9.7547	77716	115197	.0000 98720 989581
49	9.7546	78995	125616	98754 153519
48	9.7545	80240	972097	98787 332542
47	9.7544	81453	639555	98820 526662
46	9.7543	82633	112893	98853 735893
38 45	9.7542	83779	377000	.0000 98886 960245
44	9.7541	84892	416755	98920 199731
43	9.7540	85972	217024	98953 454362
42	9.7539	87018	762662	98986 724150
41	9.7538	88032	038512	99020 009108
38 40	9.7537	89012	029404	.0000 99053 309248

## Log Sines

c	log. sin.			$\Delta^1$		
38 40	9.7537	89012	029404	.0000	99053	309248
39	9.7536	89958	720156		99086	624581
38	9.7535	90872	095575		99119	955120
37	9.7534	91752	140455		99153	300877
36	9.7533	92598	839578		99186	661862
38 35	9.7532	93412	177716	.0000	99220	038091
34	9.7531	94192	139625		99253	429573
33	9.7530	94938	710052		99286	836320
32	9.7529	95651	873732		99320	258347
31	9.7528	96331	615385		99353	695663
38 30	9.7527	96977	919722	.0000	99387	148283
29	9.7526	97590	771439		99420	616215
28	9.7525	98170	155224		99454	099476
27	9.7524	98716	055748		99487	598075
26	9.7523	99228	457673		99521	112025
38 25	9.7522	99707	345648	.0000	99554	641339
24	9.7522	00152	704309		99588	186029
23	9.7521	00564	518280		99621	746105
22	9.7520	00942	772175		99655	321583
21	9.7519	01287	450592		99688	912471
38 20	9.7518	01598	538121	.0000	99722	518786
19	9.7517	01876	019335		99756	140537
18	9.7516	02119	878798		99789	777737
17	9.7515	02330	101061		99823	430399
16	9.7514	02506	670662		99857	098534
38 15	9.7513	02649	572128	.0000	99890	782156
14	9.7512	02758	789972		99924	481275
13	9.7511	02834	308697		99958	195907
12	9.7510	02876	112790		99991	926061
11	9.7509	02884	186729	1	00025	671750
38 10	9.7508	02858	514979	.0001	00059	432989
09	9.7507	02799	081990	1	00093	209787
08	9.7506	02705	872203	1	00127	002158
07	9.7505	02578	870045	1	00160	810114
06	9.7504	02418	059931	1	00194	633669
38 05	9.7503	02223	426262	.0001	00228	472833
04	9.7502	01994	953429	1	00262	327621
03	9.7501	01732	625808	1	00296	198043
02	9.7500	01436	427765	1	00330	084113
01	9.7499	01106	343652	1	00363	985844
38 00	9.7498	00742	357808	.0001	00397	903246

## Log Sines

c	log. sin.			$\Delta^1$		
38 00	9.7498	00742	357808	.0001	00397	903246
37 99	9.7497	00344	454562	1	00431	836336
98	9.7495	99912	618226	1	00465	785121
97	9.7494	99446	833105	1	00499	749619
96	9.7493	98947	083486	1	00533	729838
37 95	9.7492	98413	353648	.0001	00567	725794
94	9.7491	97845	627854	1	00601	737497
93	9.7490	97243	890357	1	00635	764963
92	9.7489	96608	125394	1	00669	808200
91	9.7488	95938	317194	1	00703	867224
37 90	9.7487	95234	449970	.0001	00737	942048
89	9.7486	94496	507922	1	00772	032682
88	9.7485	93724	475240	1	00806	139142
87	9.7484	92918	336098	1	00840	261436
86	9.7483	92078	074662	1	00874	399583
37 85	9.7482	91203	675079	.0001	00908	553589
84	9.7481	90295	121490	1	00942	723473
83	9.7480	89352	398017	1	00976	909243
82	9.7479	88375	488774	1	01011	110914
81	9.7478	87364	377860	1	01045	328499
37 80	9.7477	86319	049361	.0001	01079	562010
79	9.7476	85239	487351	1	01113	811460
78	9.7475	84125	675891	1	01148	076861
77	9.7474	82977	599030	1	01182	358228
76	9.7473	81795	240802	1	01216	655572
37 75	9.7472	80578	585230	.0001	01250	968906
74	9.7471	79327	616324	1	01285	298244
73	9.7470	78042	318080	1	01319	643597
72	9.7469	76722	674483	1	01354	004980
71	9.7468	75368	669503	1	01388	382406
37 70	9.7467	73980	287097	.0001	01422	775885
69	9.7466	72557	511212	1	01457	185432
68	9.7465	71100	325780	1	01491	611061
67	9.7464	69608	714719	1	01526	052784
66	9.7463	68082	661935	1	01560	510613
37 65	9.7462	66522	151322	.0001	01594	984562
64	9.7461	64927	166760	1	01629	474643
63	9.7460	63297	692117	1	01663	980872
62	9.7459	61633	711245	1	01698	503257
61	9.7458	59935	207988	1	01733	041817
37 60	9.7457	58202	166171	.0001	01767	596560

## Log Sines

c	log. sin.			$\Delta^1$		
37 60	9.7457	58202	166171	.0001	01767	596560
59	9.7456	56434	569611	1	01802	167502
58	9.7455	54632	402109	1	01836	754654
57	9.7454	52795	647455	1	01871	358032
56	9.7453	50924	289423	1	01905	977647
37 55	9.7452	49018	311776	.0001	01940	613512
54	9.7451	47077	698264	1	01975	265641
53	9.7450	45102	432623	1	02009	934047
52	9.7449	43092	498576	1	02044	618744
51	9.7448	41047	879832	1	02079	319742
37 50	9.7447	38968	560090	.0001	02114	037059
49	9.7446	36854	523031	1	02148	770705
48	9.7445	34705	752326	1	02183	520693
47	9.7444	32522	231633	1	02218	287038
46	9.7443	30303	944595	1	02253	069752
37 45	9.7442	28050	874843	.0001	02287	868850
44	9.7441	25763	005993	1	02322	684343
43	9.7440	23440	321650	1	02357	516246
42	9.7439	21082	805404	1	02392	364571
41	9.7438	18690	440833	1	02427	229333
37 40	9.7437	16263	211500	.0001	02462	110543
39	9.7436	13801	100957	1	02497	008217
38	9.7435	11304	092740	1	02531	922367
37	9.7434	08772	170373	1	02566	853007
36	9.7433	06205	317366	1	02601	800148
37 35	9.7432	03603	517218	.0001	02636	763808
34	9.7431	00966	753410	1	02671	743995
33	9.7429	98295	009415	1	02706	740728
32	9.7428	95588	268687	1	02741	754016
31	9.7427	92846	514671	1	02776	783875
37 30	9.7426	90069	730796	.0001	02811	830318
29	9.7425	87257	900478	1	02846	893357
28	9.7424	84411	007121	1	02881	973008
27	9.7423	81529	034113	1	02917	069282
26	9.7422	78611	964831	1	02952	182195
37 25	9.7421	75659	782636	.0001	02987	311759
24	9.7420	72672	470877	1	03022	457988
23	9.7419	69650	012889	1	03057	620896
22	9.7418	66592	391993	1	03092	800495
21	9.7417	63499	591498	1	03127	996801
37 20	9.7416	60371	594697	.0001	03163	209826

## Log Sines

c	log. sin.			$\Delta^1$		
37 20	9.7416	60371	594697	.0001	03163	209826
19	9.7415	57208	384871	1	03198	439584
18	9.7414	54009	945287	1	03233	686090
17	9.7413	50776	259197	1	03268	949354
16	9.7412	47507	309843	1	03304	229395
37 15	9.7411	44203	080448	.0001	03339	526222
14	9.7410	40863	554226	1	03374	839851
13	9.7409	37488	714375	1	03410	170296
12	9.7408	34078	544079	1	03445	517569
11	9.7407	30633	026510	1	03480	881686
37 10	9.7406	27152	144824	.0001	03516	262660
09	9.7405	23635	882164	1	03551	660503
08	9.7404	20084	221661	1	03587	075231
07	9.7403	16497	146430	1	03622	506857
06	9.7402	12874	639573	1	03657	955395
37 05	9.7401	09216	684178	.0001	03693	420860
04	9.7400	05523	263318	1	03728	903263
03	9.7399	01794	360055	1	03764	402620
02	9.7397	98029	957435	1	03799	918946
01	9.7396	94230	038489	1	03835	452251
37 00	9.7395	90394	586238	.0001	03871	002553
36 99	9.7394	86523	583685	1	03906	569865
98	9.7393	82617	013820	1	03942	154198
97	9.7392	78674	859622	1	03977	755570
96	9.7391	74697	104052	1	04013	373993
36 95	9.7390	70683	730059	.0001	04049	009481
94	9.7389	66634	720578	1	04084	662049
93	9.7388	62550	058529	1	04120	331709
92	9.7387	58429	726820	1	04156	018478
91	9.7386	54273	708342	1	04191	722367
36 90	9.7385	50081	985975	.0001	04227	443393
89	9.7384	45854	542582	1	04263	181567
88	9.7383	41591	361015	1	04298	936906
87	9.7382	37292	424109	1	04334	709423
86	9.7381	32957	714686	1	04370	499132
36 85	9.7380	28587	215554	.0001	04406	306047
84	9.7379	24180	909507	1	04442	130182
83	9.7378	19738	779325	1	04477	971552
82	9.7377	15260	807773	1	04513	830171
81	9.7376	10746	977602	1	04549	706053
36 80	9.7375	06197	271549	.0001	04585	599212

## Log Sines

c	log. sin.			$\Delta^1$		
36 80	9.7375	06197	271549	.0001	04585	599212
79	9.7374	01611	672337	1	04621	509663
78	9.7372	96990	162674	1	04657	437419
77	9.7371	92332	725255	1	04693	382496
76	9.7370	87639	342759	1	04729	344907
36 75	9.7369	82909	997852	.0001	04765	324667
74	9.7368	78144	673185	1	04801	321790
73	9.7367	73343	351395	1	04837	336290
72	9.7366	68506	015105	1	04873	368182
71	9.7365	63632	646923	1	04909	417481
36 70	9.7364	58723	229442	.0001	04945	484199
69	9.7363	53777	745243	1	04981	568353
68	9.7362	48796	176890	1	05017	669956
67	9.7361	43778	506934	1	05053	789023
66	9.7360	38724	717911	1	05089	925568
36 65	9.7359	33634	792343	.0001	05126	079606
64	9.7358	28508	712737	1	05162	251152
63	9.7357	23346	461585	1	05198	440218
62	9.7356	18148	021367	1	05234	646822
61	9.7355	12913	374545	1	05270	870976
36 60	9.7354	07642	503569	.0001	05307	112695
59	9.7353	02335	390874	1	05343	371995
58	9.7351	96992	018879	1	05379	648889
57	9.7350	91612	369990	1	05415	943392
56	9.7349	86196	426598	1	05452	255519
36 55	9.7348	80744	171079	.0001	05488	585284
54	9.7347	75255	585795	1	05524	932703
53	9.7346	69730	653092	1	05561	297788
52	9.7345	64169	355304	1	05597	680557
51	9.7344	58571	674747	1	05634	081022
36 50	9.7343	52937	593725	.0001	05670	499199
49	9.7342	47267	094526	1	05706	935103
48	9.7341	41560	159423	1	05743	388749
47	9.7340	35816	770674	1	05779	860149
46	9.7339	30036	910525	1	05816	349321
36 45	9.7338	24220	561204	.0001	05852	856278
44	9.7337	18367	704926	1	05889	381036
43	9.7336	12478	323890	1	05925	923609
42	9.7335	06552	400281	1	05962	484012
41	9.7334	00589	916269	1	05999	062260
36 40	9.7332	94590	854009	.0001	06035	658368

## Log Sines

c	log. sin.			$\Delta^1$		
36 40	9.7332	94590	854009	.0001	06035	658368
39	9.7331	88555	195641	1	06072	272351
38	9.7330	82482	923290	1	06108	904222
37	9.7329	76374	019068	1	06145	554000
36	9.7328	70228	465068	1	06182	221695
36 35	9.7327	64046	243373	.0001	06218	907326
34	9.7326	57827	336047	1	06255	610905
33	9.7325	51571	725142	1	06292	332451
32	9.7324	45279	392691	1	06329	071973
31	9.7323	38950	320718	1	06365	829492
36 30	9.7322	32584	491226	.0001	06402	605019
29	9.7321	26181	886207	1	06439	398572
28	9.7320	19742	487635	1	06476	210163
27	9.7319	13266	277472	1	06513	039809
26	9.7318	06753	237663	1	06549	887525
36 25	9.7317	00203	350138	.0001	06586	753326
24	9.7315	93616	596812	1	06623	637227
23	9.7314	86992	959585	1	06660	539243
22	9.7313	80332	420342	1	06697	459390
21	9.7312	73634	960952	1	06734	397682
36 20	9.7311	66900	563270	.0001	06771	354134
19	9.7310	60129	209136	1	06808	328764
18	9.7309	53320	880372	1	06845	321583
17	9.7308	46475	558789	1	06882	332609
16	9.7307	39593	226180	1	06919	361858
36 15	9.7306	32673	864322	.0001	06956	409343
14	9.7305	25717	454979	1	06993	475080
13	9.7304	18723	979899	1	07030	559086
12	9.7303	11693	420813	1	07067	661373
11	9.7302	04625	759440	1	07104	781960
36 10	9.7300	97520	977480	.0001	07141	920860
09	9.7299	90379	056620	1	07179	078090
08	9.7298	83199	978530	1	07216	253663
07	9.7297	75983	724867	1	07253	447597
06	9.7296	68730	277270	1	07290	659906
36 05	9.7295	61439	617364	.0001	07327	890606
04	9.7294	54111	726758	1	07365	139712
03	9.7293	46746	587046	1	07402	407241
02	9.7292	39344	179805	1	07439	693205
01	9.7291	31904	486600	1	07476	997624
36 00	9.7290	24427	488976	.0001	07514	320511



## Log Sines

c	log. sin.			$\Delta^1$		
36 00	9.7290	24427	488976	.0001	07514	320511
35 99	9.7289	16913	168465	1	07551	661881
98	9.7288	09361	506584	1	07589	021751
97	9.7287	01772	484833	1	07626	400137
96	9.7285	94146	084696	1	07663	797052
35 95	9.7284	86482	287644	.0001	07701	212515
94	9.7283	78781	075129	1	07738	646539
93	9.7282	71042	428590	1	07776	099141
92	9.7281	63266	329449	1	07813	570336
91	9.7280	55452	759113	1	07851	060141
35 90	9.7279	47601	698972	.0001	07888	568570
89	9.7278	39713	130402	1	07926	095640
88	9.7277	31787	034762	1	07963	641366
87	9.7276	23823	393396	1	08001	205764
86	9.7275	15822	187632	1	08038	788850
35 85	9.7274	07783	398782	.0001	08076	390639
84	9.7272	99707	008143	1	08114	011148
83	9.7271	91592	996995	1	08151	650393
82	9.7270	83441	346602	1	08189	308388
81	9.7269	75252	038214	1	08226	985150
35 80	9.7268	67025	053064	.0001	08264	680695
79	9.7267	58760	372369	1	08302	395040
78	9.7266	50457	977329	1	08340	128199
77	9.7265	42117	849130	1	08377	880188
76	9.7264	33739	968942	1	08415	651025
35 75	9.7263	25324	317917	.0001	08453	440723
74	9.7262	16870	877194	1	08491	249301
73	9.7261	08379	627893	1	08529	076774
72	9.7259	99850	551119	1	08566	923156
71	9.7258	91283	627963	1	08604	788466
35 70	9.7257	82678	839497	.0001	08642	672719
69	9.7256	74036	166778	1	08680	575930
68	9.7255	65355	590848	1	08718	498116
67	9.7254	56637	092732	1	08756	439295
66	9.7253	47880	653437	1	08794	399479
35 65	9.7252	39086	253958	.0001	08832	378687
64	9.7251	30253	875271	1	08870	376936
63	9.7250	21383	498335	1	08908	394239
62	9.7249	12475	104096	1	08946	430615
61	9.7248	03528	673481	1	08984	486080
35 60	9.7246	94544	187401	.0001	09022	560648

## Log Sines

c	log. sin.			$\Delta^1$
35 60	9.7246	94544	187401	.0001 09022 560648
59	9.7245	85521	626753	1 09060 654337
58	9.7244	76460	972416	1 09098 767165
57	9.7243	67362	205251	1 09136 899144
56	9.7242	58225	306107	1 09175 050294
35 55	9.7241	49050	255813	.0001 09213 220629
54	9.7240	39837	035184	1 09251 410168
53	9.7239	30585	625016	1 09289 618925
52	9.7238	21296	006091	1 09327 846917
51	9.7237	11968	159174	1 09366 094161
35 50	9.7236	02602	065013	.0001 09404 360673
49	9.7234	93197	704340	1 09442 646469
48	9.7233	83755	057871	1 09480 951567
47	9.7232	74274	106304	1 09519 275981
46	9.7231	64754	830323	1 09557 619731
35 45	9.7230	55197	210592	.0001 09595 982829
44	9.7229	45601	227763	1 09634 365296
43	9.7228	35966	862467	1 09672 767146
42	9.7227	26294	095321	1 09711 188397
41	9.7226	16582	906924	1 09749 629063
35 40	9.7225	06833	277861	.0001 09788 089164
39	9.7223	97045	188697	1 09826 568715
38	9.7222	87218	619982	1 09865 067731
37	9.7221	77353	552251	1 09903 586233
36	9.7220	67449	966018	1 09942 124233
35 35	9.7219	57507	841785	.0001 09980 681750
34	9.7218	47527	160035	1 10019 258802
33	9.7217	37507	901233	1 10057 855404
32	9.7216	27450	045829	1 10096 471571
31	9.7215	17353	574258	1 10135 107325
35 30	9.7214	07218	466933	.0001 10173 762677
29	9.7212	97044	704256	1 10212 437648
28	9.7211	86832	266608	1 10251 132252
27	9.7210	76581	134356	1 10289 846509
26	9.7209	66291	287847	1 10328 580433
35 25	9.7208	55962	707414	.0001 10367 334043
24	9.7207	45595	373371	1 10406 107353
23	9.7206	35189	266018	1 10444 900384
22	9.7205	24744	365634	1 10483 713149
21	9.7204	14260	652485	1 10522 545668
35 20	9.7203	03738	106817	.0001 10561 397956

## Log Sines

c	log. sin.			$\Delta^1$		
35 20	9.7203	03738	106817	.0001	10561	397956
19	9.7201	93176	708861	1	10600	270032
18	9.7200	82576	438829	1	10639	161911
17	9.7199	71937	276918	1	10678	073612
16	9.7198	61259	203306	1	10717	005149
35 15	9.7197	50542	198157	.0001	10755	956543
14	9.7196	39786	241614	1	10794	927808
13	9.7195	28991	313806	1	10833	918963
12	9.7194	18157	394843	1	10872	930025
11	9.7193	07284	464818	1	10911	961009
35 10	9.7191	96372	503809	.0001	10951	011936
09	9.7190	85421	491873	1	10990	082819
08	9.7189	74431	409054	1	11029	173679
07	9.7188	63402	235375	1	11068	284531
06	9.7187	52333	950844	1	11107	415393
35 05	9.7186	41226	535451	.0001	11146	566282
04	9.7185	30079	969169	1	11185	737215
03	9.7184	18894	231954	1	11224	928211
02	9.7183	07669	303743	1	11264	139285
01	9.7181	96405	164458	1	11303	370456
35 00	9.7180	85101	794002	.0001	11342	621741
34 99	9.7179	73759	172261	1	11381	893158
98	9.7178	62377	279103	1	11421	184722
97	9.7177	50956	094381	1	11460	496453
96	9.7176	39495	597928	1	11499	828368
34 95	9.7175	27995	769560	.0001	11539	180484
94	9.7174	16456	589076	1	11578	552819
93	9.7173	04878	036257	1	11617	945390
92	9.7171	93260	090867	1	11657	358214
91	9.7170	81602	732653	1	11696	791311
34 90	9.7169	69905	941342	.0001	11736	244695
89	9.7168	58169	696647	1	11775	718387
88	9.7167	46393	978260	1	11815	212403
87	9.7166	34578	765857	1	11854	726759
86	9.7165	22724	039098	1	11894	261477
34 85	9.7164	10829	777621	.0001	11933	816571
84	9.7162	98895	961050	1	11973	392060
83	9.7161	86922	568990	1	12012	987962
82	9.7160	74909	581028	1	12052	604293
81	9.7159	62856	976735	1	12092	241074
34 80	9.7158	50764	735661	.0001	12131	898319

## Log Sines

c	log. sin.			$\Delta^1$		
34 80	9.7158	50764	735661	.0001	12131	898319
79	9.7157	38632	837342	1	12171	576050
78	9.7156	26461	261292	1	12211	274281
77	9.7155	14249	987011	1	12250	993032
76	9.7154	01998	993979	1	12290	732320
34 75	9.7152	89708	261659	.0001	12330	492163
74	9.7151	77377	769496	1	12370	272580
73	9.7150	65007	496916	1	12410	073587
72	9.7149	52597	423329	1	12449	895205
71	9.7148	40147	528124	1	12489	737447
34 70	9.7147	27657	790677	.0001	12529	600337
69	9.7146	15128	190340	1	12569	483888
68	9.7145	02558	706452	1	12609	388120
67	9.7143	89949	318332	1	12649	313053
66	9.7142	77300	005279	1	12689	258701
34 65	9.7141	64610	746578	.0001	12729	225086
64	9.7140	51881	521492	1	12769	212224
63	9.7139	39112	309268	1	12809	220133
62	9.7138	26303	089135	1	12849	248832
61	9.7137	13453	840303	1	12889	298339
34 60	9.7136	00564	541964	.0001	12929	368672
59	9.7134	87635	173292	1	12969	459849
58	9.7133	74665	713443	1	13009	571890
57	9.7132	61656	141553	1	13049	704810
56	9.7131	48606	436743	1	13089	858631
34 55	9.7130	35516	578112	.0001	13130	033368
54	9.7129	22386	544744	1	13170	229042
53	9.7128	09216	315702	1	13210	445669
52	9.7126	96005	870033	1	13250	683269
51	9.7125	82755	186764	1	13290	941860
34 50	9.7124	69464	244904	.0001	13331	221461
49	9.7123	56133	023443	1	13371	522089
48	9.7122	42761	501354	1	13411	843763
47	9.7121	29349	657591	1	13452	186503
46	9.7120	15897	471088	1	13492	550325
34 45	9.7119	02404	920763	.0001	13532	935249
44	9.7117	88871	985514	1	13573	341294
43	9.7116	75298	644220	1	13613	768477
42	9.7115	61684	875743	1	13654	216818
41	9.7114	48030	658925	1	13694	686335
34 40	9.7113	34335	972590	.0001	13735	177047

## Log Sines

c	log. sin.			$\Delta^1$		
34 40	9.7113	34335	972590	.0001	13735	177047
39	9.7112	20600	795543	1	13775	688971
38	9.7111	06825	106572	1	13816	222129
37	9.7109	93008	884443	1	13856	776537
36	9.7108	79152	107906	1	13897	352214
34 35	9.7107	65254	755692	.0001	13937	949179
34	9.7106	51316	806513	1	13978	567452
33	9.7105	37338	239061	1	14019	207050
32	9.7104	23319	032011	1	14059	867993
31	9.7103	09259	164018	1	14100	550299
34 30	9.7101	95158	613719	.0001	14141	253987
29	9.7100	81017	359732	1	14181	979077
28	9.7099	66835	380655	1	14222	725587
27	9.7098	52612	655068	1	14263	493535
26	9.7097	38349	161533	1	14304	282941
34 25	9.7096	24044	878592	.0001	14345	093824
24	9.7095	09699	784768	1	14385	926203
23	9.7093	95313	858565	1	14426	780097
22	9.7092	80887	078468	1	14467	655524
21	9.7091	66419	422944	1	14508	552505
34 20	9.7090	51910	870439	.0001	14549	471057
19	9.7089	37361	399382	1	14590	411200
18	9.7088	22770	988182	1	14631	372954
17	9.7087	08139	615228	1	14672	356337
16	9.7085	93467	258891	1	14713	361368
34 15	9.7084	78753	897523	.0001	14754	388068
14	9.7083	63999	509455	1	14795	436452
13	9.7082	49204	073003	1	14836	506545
12	9.7081	34367	566458	1	14877	598362
11	9.7080	19489	968096	1	14918	711924
34 10	9.7079	04571	256172	.0001	14959	847249
09	9.7077	89611	408923	1	15001	004358
08	9.7076	74610	404565	1	15042	183270
07	9.7075	59568	221295	1	15083	384003
06	9.7074	44484	837292	1	15124	606578
34 05	9.7073	29360	230714	.0001	15165	851012
04	9.7072	14194	379702	1	15207	117329
03	9.7070	98987	262373	1	15248	405543
02	9.7069	83738	856830	1	15289	715677
01	9.7068	68449	141153	1	15331	047751
34 00	9.7067	53118	093402	.0001	15372	401780

## Log Sines

c	log. sin.			$\Delta^1$		
34 00	9.7067	53118	093402	.0001	15372	401780
33 99	9.7066	37745	691622	1	15413	777790
98	9.7065	22331	913832	1	15455	175794
97	9.7064	06876	738038	1	15496	595818
96	9.7062	91380	142220	1	15538	037875
33 95	9.7061	75842	104345	.0001	15579	501991
94	9.7060	60262	602354	1	15620	988181
93	9.7059	44641	614173	1	15662	496468
92	9.7058	28979	117705	1	15704	026868
91	9.7057	13275	090837	1	15745	579404
33 90	9.7055	97529	511433	.0001	15787	154094
89	9.7054	81742	357339	1	15828	750959
88	9.7053	65913	606380	1	15870	370018
87	9.7052	50043	236362	1	15912	011291
86	9.7051	34131	225071	1	15953	674797
33 85	9.7050	18177	550274	.0001	15995	360558
84	9.7049	02182	189716	1	16037	068591
83	9.7047	86145	121125	1	16078	798920
82	9.7046	70066	322205	1	16120	551560
81	9.7045	53945	770645	1	16162	326534
33 80	9.7044	37783	444111	.0001	16204	123862
79	9.7043	21579	320249	1	16245	943563
78	9.7042	05333	376686	1	16287	785657
77	9.7040	89045	591029	1	16329	650166
76	9.7039	72715	940863	1	16371	537107
33 75	9.7038	56344	403756	.0001	16413	446502
74	9.7037	39930	957254	1	16455	378372
73	9.7036	23475	578882	1	16497	332734
72	9.7035	06978	246148	1	16539	309611
71	9.7033	90438	936537	1	16581	309023
33 70	9.7032	73857	627514	.0001	16623	330990
69	9.7031	57234	296524	1	16665	375529
68	9.7030	40568	920995	1	16707	442666
67	9.7029	23861	478329	1	16749	532417
66	9.7028	07111	945912	1	16791	644805
33 65	9.7026	90320	301107	.0001	16833	779847
64	9.7025	73486	521260	1	16875	937567
63	9.7024	56610	583693	1	16918	117983
62	9.7023	39692	465710	1	16960	321116
61	9.7022	22732	144594	1	17002	546988
33 60	9.7021	05729	597606	.0001	17044	795617

## Log Sines

c	log. sin.			$\Delta^1$		
33 60	9.7021	05729	597606	.0001	17044	795617
59	9.7019	88684	801989	1	17087	067025
58	9.7018	71597	734964	1	17129	361233
57	9.7017	54468	373731	1	17171	678259
56	9.7016	37296	695472	1	17214	018126
33 55	9.7015	20082	677346	.0001	17256	380853
54	9.7014	02826	296493	1	17298	766463
53	9.7012	85527	530030	1	17341	174975
52	9.7011	68186	355055	1	17383	606408
51	9.7010	50802	748647	1	17426	060786
33 50	9.7009	33376	687861	.0001	17468	538128
49	9.7008	15908	149733	1	17511	038454
48	9.7006	98397	111279	1	17553	561787
47	9.7005	80843	549492	1	17596	108145
46	9.7004	63247	441347	1	17638	677551
33 45	9.7003	45608	763796	.0001	17681	270024
44	9.7002	27927	493772	1	17723	885588
43	9.7001	10203	608184	1	17766	524260
42	9.6999	92437	083924	1	17809	186063
41	9.6998	74627	897861	1	17851	871018
33 40	9.6997	56776	026843	.0001	17894	579146
39	9.6996	38881	447697	1	17937	310467
38	9.6995	20944	137230	1	17980	065003
37	9.6994	02964	072227	1	18022	842774
36	9.6992	84941	229453	1	18065	643802
33 35	9.6991	66875	585651	.0001	18108	468108
34	9.6990	48767	117543	1	18151	315712
33	9.6989	30615	801831	1	18194	186638
32	9.6988	12421	615193	1	18237	080903
31	9.6986	94184	534290	1	18279	998532
33 30	9.6985	75904	535758	.0001	18322	939544
29	9.6984	57581	596214	1	18365	903960
28	9.6983	39215	692254	1	18408	891803
27	9.6982	20806	800451	1	18451	903093
26	9.6981	02354	897358	1	18494	937852
33 25	9.6979	83859	959506	.0001	18537	996101
24	9.6978	65321	963405	1	18581	077861
23	9.6977	46740	885544	1	18624	183154
22	9.6976	28116	702390	1	18667	312002
21	9.6975	09449	390388	1	18710	464424
33 20	9.6973	90738	925964	.0001	18753	640444

## Log Sines

c	log. sin.			$\Delta^1$		
33 20	9.6973	90738	925964	.0001	18753	640444
19	9.6972	71985	285520	1	18796	840083
18	9.6971	53188	445437	1	18840	063361
17	9.6970	34348	382076	1	18883	310301
16	9.6969	15465	071775	1	18926	580925
33 15	9.6967	96538	490850	.0001	18969	875254
14	9.6966	77568	615596	1	19013	193308
13	9.6965	58555	422288	1	19056	535111
12	9.6964	39498	887177	1	19099	900684
11	9.6963	20398	986493	1	19143	290048
33 10	9.6962	01255	696445	.0001	19186	703225
09	9.6960	82068	993220	1	19230	140237
08	9.6959	62838	852983	1	19273	601107
07	9.6958	43565	251876	1	19317	085854
06	9.6957	24248	166022	1	19360	594501
33 05	9.6956	04887	571521	.0001	19404	127072
04	9.6954	85483	444449	1	19447	683587
03	9.6953	66035	760862	1	19491	264066
02	9.6952	46544	496796	1	19534	868535
01	9.6951	27009	628261	1	19578	497013
33 00	9.6950	07431	131248	.0001	19622	149523
32 99	9.6948	87808	981725	1	19665	826087
98	9.6947	68143	155638	1	19709	526727
97	9.6946	48433	628911	1	19753	251465
96	9.6945	28680	377446	1	19797	000324
32 95	9.6944	08883	377122	.0001	19840	773323
94	9.6942	89042	603799	1	19884	570489
93	9.6941	69158	033310	1	19928	391840
92	9.6940	49229	641470	1	19972	237401
91	9.6939	29257	404069	1	20016	107192
32 90	9.6938	09241	296877	.0001	20060	001236
89	9.6936	89181	295641	1	20103	919557
88	9.6935	69077	376084	1	20147	862175
87	9.6934	48929	513909	1	20191	829113
86	9.6933	28737	684796	1	20235	820394
32 85	9.6932	08501	864402	.0001	20279	836041
84	9.6930	88222	028361	1	20323	876073
83	9.6929	67898	152288	1	20367	940517
82	9.6928	47530	211771	1	20412	029393
81	9.6927	27118	182378	1	20456	142723
32 80	9.6926	06662	039655	.0001	20500	280531



## Log Sines

c	log. sin.			$\Delta^1$		
32 80	9.6926	06662	039655	.0001	20500	280531
79	9.6924	86161	759124	1	20544	442839
78	9.6923	65617	316285	1	20588	629669
77	9.6922	45028	686616	1	20632	841044
76	9.6921	24395	845572	1	20677	076988
32 75	9.6920	03718	768584	.0001	20721	337521
74	9.6918	82997	431063	1	20765	622669
73	9.6917	62231	808394	1	20809	932451
72	9.6916	41421	875943	1	20854	266892
71	9.6915	20567	609051	1	20898	626015
32 70	9.6913	99668	983036	.0001	20943	009842
69	9.6912	78725	973194	1	20987	418396
68	9.6911	57738	554798	1	21031	851700
67	9.6910	36706	703098	1	21076	309777
66	9.6909	15630	393321	1	21120	792649
32 65	9.6907	94509	600672	.0001	21165	300340
64	9.6906	73344	300332	1	21209	832872
63	9.6905	52134	467460	1	21254	390270
62	9.6904	30880	077190	1	21298	972556
61	9.6903	09581	104634	1	21343	579750
32 60	9.6901	88237	524884	.0001	21388	211881
59	9.6900	66849	313003	1	21432	868967
58	9.6899	45416	444036	1	21477	551033
57	9.6898	23938	893003	1	21522	258103
56	9.6897	02416	634900	1	21566	990200
32 55	9.6895	80849	644700	.0001	21611	747345
54	9.6894	59237	897355	1	21656	529565
53	9.6893	37581	367790	1	21701	336879
52	9.6892	15880	030911	1	21746	169314
51	9.6890	94133	861597	1	21791	026892
32 50	9.6889	72342	834705	.0001	21835	909635
49	9.6888	50506	925070	1	21880	817569
48	9.6887	28626	107501	1	21925	750716
47	9.6886	06700	356785	1	21970	709098
46	9.6884	84729	647687	1	22015	692742
32 45	9.6883	62713	954945	.0001	22060	701668
44	9.6882	40653	253277	1	22105	735902
43	9.6881	18547	517375	1	22150	795467
42	9.6879	96396	721908	1	22195	880385
41	9.6878	74200	841523	1	22240	990682
32 40	9.6877	51959	850841	.0001	22286	126380

## Log Sines

c	log. sin.			$\Delta^1$		
32 40	9.6877	51959	850841	.0001	22286	126380
39	9.6876	29673	724461	1	22331	287503
38	9.6875	07342	436958	1	22376	474076
37	9.6873	84965	962882	1	22421	686121
36	9.6872	62544	276761	1	22466	923663
32 35	9.6871	40077	353098	.0001	22512	186724
34	9.6870	17565	166374	1	22557	475331
33	9.6868	95007	691043	1	22602	789505
32	9.6867	72404	901538	1	22648	129270
31	9.6866	49756	772268	1	22693	494653
32 30	9.6865	27063	277615	.0001	22738	885674
29	9.6864	04324	391941	1	22784	302360
28	9.6862	81540	089581	1	22829	744733
27	9.6861	58710	344848	1	22875	212818
26	9.6860	35835	132030	1	22920	706639
32 25	9.6859	12914	425391	.0001	22966	226220
24	9.6857	89948	199171	1	23011	771585
23	9.6856	66936	427586	1	23057	342759
22	9.6855	43879	084827	1	23102	939764
21	9.6854	20776	145063	1	23148	562628
32 20	9.6852	97627	582435	.0001	23194	211370
19	9.6851	74433	371065	1	23239	886020
18	9.6850	51193	485045	1	23285	586599
17	9.6849	27907	898446	1	23331	313130
16	9.6848	04576	585316	1	23377	065642
32 15	9.6846	81199	519674	.0001	23422	844155
14	9.6845	57776	675519	1	23468	648695
13	9.6844	34308	026824	1	23514	479288
12	9.6843	10793	547536	1	23560	335956
11	9.6841	87233	211580	1	23606	218724
32 10	9.6840	63626	992856	.0001	23652	127619
09	9.6839	39974	865237	1	23698	062663
08	9.6838	16276	802574	1	23744	023881
07	9.6836	92532	778693	1	23790	011298
06	9.6835	68742	767395	1	23836	024939
32 05	9.6834	44906	742456	.0001	23882	064828
04	9.6833	21024	677628	1	23928	130991
03	9.6831	97096	546637	1	23974	223452
02	9.6830	73122	323185	1	24020	342234
01	9.6829	49101	980951	1	24066	487365
32 00	9.6828	25035	493586	.0001	24112	658869

## Log Sines

c	log. sin.			$\Delta^1$		
32 00	9.6828	25035	493586	.0001	24112	658869
31 99	9.6827	00922	834717	1	24158	856769
98	9.6825	76763	977948	1	24205	081092
97	9.6824	52558	896856	1	24251	331861
96	9.6823	28307	564995	1	24297	609104
31 95	9.6822	04009	955891	.0001	24343	912843
94	9.6820	79666	043048	1	24390	243105
93	9.6819	55275	799943	1	24436	599914
92	9.6818	30839	200029	1	24482	983296
91	9.6817	06356	216733	1	24529	393274
31 90	9.6815	81826	823459	.0001	24575	829876
89	9.6814	57250	993583	1	24622	293127
88	9.6813	32628	700456	1	24668	783049
87	9.6812	07959	917407	1	24715	299671
86	9.6810	83244	617736	1	24761	843016
31 85	9.6809	58482	774720	.0001	24808	413110
84	9.6808	33674	361610	1	24855	009980
83	9.6807	08819	351630	1	24901	633649
82	9.6805	83917	717981	1	24948	284143
81	9.6804	58969	433838	1	24994	961488
31 80	9.6803	33974	472350	.0001	25041	665710
79	9.6802	08932	806640	1	25088	396832
78	9.6800	83844	409808	1	25135	154883
77	9.6799	58709	254925	1	25181	939887
76	9.6798	33527	315038	1	25228	751869
31 75	9.6797	08298	563169	.0001	25275	590855
74	9.6795	83022	972314	1	25322	456872
73	9.6794	57700	515442	1	25369	349944
72	9.6793	32331	165498	1	25416	270097
71	9.6792	06914	895401	1	25463	217357
31 70	9.6790	81451	678044	.0001	25510	191751
69	9.6789	55941	486293	1	25557	193303
68	9.6788	30384	292990	1	25604	222041
67	9.6787	04780	070949	1	25651	277988
66	9.6785	79128	792961	1	25698	361173
31 65	9.6784	53430	431788	.0001	25745	471619
64	9.6783	27684	960169	1	25792	609356
63	9.6782	01892	350813	1	25839	774405
62	9.6780	76052	576408	1	25886	966796
61	9.6779	50165	609612	1	25934	186554
31 60	9.6778	24231	423058	.0001	25981	433704

## Log Sines

c	log. sin.			$\Delta^1$		
31 60	9.6778	24231	423058	.0001	25981	433704
59	9.6776	98249	989354	1	26028	708275
58	9.6775	72221	281079	1	26076	010289
57	9.6774	46145	270790	1	26123	339776
56	9.6773	20021	931014	1	26170	696761
31 55	9.6771	93851	234253	.0001	26218	081270
54	9.6770	67633	152983	1	26265	493329
53	9.6769	41367	659654	1	26312	932965
52	9.6768	15054	726689	1	26360	400205
51	9.6766	88694	326484	1	26407	895074
31 50	9.6765	62286	431410	.0001	26455	417599
49	9.6764	35831	013811	1	26502	967808
48	9.6763	09328	046003	1	26550	545726
47	9.6761	82777	500277	1	26598	151379
46	9.6760	56179	348898	1	26645	784794
31 45	9.6759	29533	564104	.0001	26693	446000
44	9.6758	02840	118104	1	26741	135021
43	9.6756	76098	983083	1	26788	851884
42	9.6755	49310	131199	1	26836	596616
41	9.6754	22473	534583	1	26884	369245
31 40	9.6752	95589	165338	.0001	26932	169797
39	9.6751	68656	995541	1	26979	998298
38	9.6750	41676	997243	1	27027	854776
37	9.6749	14649	142467	1	27075	739257
36	9.6747	87573	403210	1	27123	651769
31 35	9.6746	60449	751441	.0001	27171	592338
34	9.6745	33278	159103	1	27219	560991
33	9.6744	06058	598112	1	27267	557757
32	9.6742	78791	040355	1	27315	582661
31	9.6741	51475	457694	1	27363	635730
31 30	9.6740	24111	821964	.0001	27411	716993
29	9.6738	96700	104971	1	27459	826475
28	9.6737	69240	278496	1	27507	964205
27	9.6736	41732	314291	1	27556	130210
26	9.6735	14176	184081	1	27604	324516
31 25	9.6733	86571	859565	.0001	27652	547151
24	9.6732	58919	312414	1	27700	798143
23	9.6731	31218	514271	1	27749	077520
22	9.6730	03469	436751	1	27797	385307
21	9.6728	75672	051444	1	27845	721533
31 20	9.6727	47826	329911	.0001	27894	086226

## Log Sines

c	log. sin.			$\Delta^1$		
31 20	9.6727	47826	329911	.0001	27894	086226
19	9.6726	19932	243685	1	27942	479413
18	9.6724	91989	764272	1	27990	901121
17	9.6723	63998	863151	1	28039	351378
16	9.6722	35959	511773	1	28087	830213
31 15	9.6721	07871	681560	.0001	28136	337651
14	9.6719	79735	343909	1	28184	873722
13	9.6718	51550	470187	1	28233	438453
12	9.6717	23317	031734	1	28282	031871
11	9.6715	95034	999863	1	28330	654005
31 10	9.6714	66704	345858	.0001	28379	304883
09	9.6713	38325	040975	1	28427	984531
08	9.6712	09897	056444	1	28476	692979
07	9.6710	81420	363465	1	28525	430255
06	9.6709	52894	933210	1	28574	196385
31 05	9.6708	24320	736825	.0001	28622	991399
04	9.6706	95697	745426	1	28671	815324
03	9.6705	67025	930102	1	28720	668188
02	9.6704	38305	261914	1	28769	550021
01	9.6703	09535	711893	1	28818	460849
31 00	9.6701	80717	251044	.0001	28867	400701
30 99	9.6700	51849	850343	1	28916	369605
98	9.6699	22933	480738	1	28965	367589
97	9.6697	93968	113149	1	29014	394684
96	9.6696	64953	718465	1	29063	450915
30 95	9.6695	35890	267550	.0001	29112	536311
94	9.6694	06777	731239	1	29161	650903
93	9.6692	77616	080336	1	29210	794716
92	9.6691	48405	285620	1	29259	967780
91	9.6690	19145	317840	1	29309	170125
30 90	9.6688	89836	147715	.0001	29358	401777
89	9.6687	60477	745938	1	29407	662767
88	9.6686	31070	083171	1	29456	953122
87	9.6685	01613	130049	1	29506	272871
86	9.6683	72106	857178	1	29555	622044
30 85	9.6682	42551	235134	.0001	29605	000667
84	9.6681	12946	234467	1	29654	408773
83	9.6679	83291	825694	1	29703	846386
82	9.6678	53587	979308	1	29753	313538
81	9.6677	23834	665770	1	29802	810259
30 80	9.6675	94031	855511	.0001	29852	336574

## Log Sines

c	log. sin.			$\Delta^1$		
30 80	9.6675	94031	855511	.0001	29852	336574
79	9.6674	64179	518937	1	29901	892515
78	9.6673	34277	626422	1	29951	478110
77	9.6672	04326	148312	1	30001	093389
76	9.6670	74325	054923	1	30050	738380
30 75	9.6669	44274	316543	.0001	30100	413113
74	9.6668	14173	903430	1	30150	117616
73	9.6666	84023	785814	1	30199	851919
72	9.6665	53823	933895	1	30249	616052
71	9.6664	23574	317843	1	30299	410043
30 70	9.6662	93274	907800	.0001	30349	233922
69	9.6661	62925	673878	1	30399	087719
68	9.6660	32526	586159	1	30448	971461
67	9.6659	02077	614698	1	30498	885181
66	9.6657	71578	729517	1	30548	828906
30 65	9.6656	41029	900611	.0001	30598	802665
64	9.6655	10431	097946	1	30648	806491
63	9.6653	79782	291455	1	30698	840409
62	9.6652	49083	451046	1	30748	904453
61	9.6651	18334	546593	1	30798	998650
30 60	9.6649	87535	547943	.0001	30849	123029
59	9.6648	56686	424914	1	30899	277624
58	9.6647	25787	147290	1	30949	462459
57	9.6645	94837	684831	1	30999	677569
56	9.6644	63838	007262	1	31049	922981
30 55	9.6643	32788	084281	.0001	31100	198725
54	9.6642	01687	885556	1	31150	504832
53	9.6640	70537	380724	1	31200	841332
52	9.6639	39336	539392	1	31251	208254
51	9.6638	08085	331138	1	31301	605630
30 50	9.6636	76783	725508	.0001	31352	033487
49	9.6635	45431	692021	1	31402	491858
48	9.6634	14029	200163	1	31452	980771
47	9.6632	82576	219392	1	31503	500260
46	9.6631	51072	719132	1	31554	050350
30 45	9.6630	19518	668782	.0001	31604	631075
44	9.6628	87914	037707	1	31655	242464
43	9.6627	56258	795243	1	31705	884548
42	9.6626	24552	910695	1	31756	557358
41	9.6624	92796	353337	1	31807	260922
30 40	9.6623	60989	092415	.0001	31857	995274

## Log Sines

c	log. sin.			$\Delta^1$		
30 40	9.6623	60989	092415	.0001	31857	995274
39	9.6622	29131	097141	1	31908	760441
38	9.6620	97222	336700	1	31959	556456
37	9.6619	65262	780244	1	32010	383349
36	9.6618	33252	396895	1	32061	241150
30 35	9.6617	01191	155745	.0001	32112	129892
34	9.6615	69079	025853	1	32163	049602
33	9.6614	36915	976251	1	32214	000314
32	9.6613	04701	975937	1	32264	982057
31	9.6611	72436	993880	1	32315	994863
30 30	9.6610	40120	999017	.0001	32367	038763
29	9.6609	07753	960254	1	32418	113787
28	9.6607	75335	846467	1	32469	219967
27	9.6606	42866	626500	1	32520	357332
26	9.6605	10346	269168	1	32571	525916
30 25	9.6603	77774	743252	.0001	32622	725748
24	9.6602	45152	017504	1	32673	956861
23	9.6601	12478	060643	1	32725	219283
22	9.6599	79752	841360	1	32776	513049
21	9.6598	46976	328311	1	32827	838188
30 20	9.6597	14148	490123	.0001	32879	194732
19	9.6595	81269	295391	1	32930	582712
18	9.6594	48338	712679	1	32982	002160
17	9.6593	15356	710519	1	33033	453108
16	9.6591	82323	257411	1	33084	935585
30 15	9.6590	49238	321826	.0001	33136	449625
14	9.6589	16101	872201	1	33187	995259
13	9.6587	82913	876942	1	33239	572518
12	9.6586	49674	304424	1	33291	181434
11	9.6585	16383	122990	1	33342	822040
30 10	9.6583	83040	300950	.0001	33394	494365
09	9.6582	49645	806585	1	33446	198442
08	9.6581	16199	608143	1	33497	934305
07	9.6579	82701	673838	1	33549	701982
06	9.6578	49151	971856	1	33601	501508
30 05	9.6577	15550	470348	.0001	33653	332914
04	9.6575	81897	137434	1	33705	196231
03	9.6574	48191	941203	1	33757	091492
02	9.6573	14434	849711	1	33809	018730
01	9.6571	80625	830981	1	33860	977976
30 00	9.6570	46764	853005	.0001	33912	969261

## Log Sines

c	log. sin.			$\Delta^1$		
30 00	9.6570	46764	853005	.0001	33912	969261
29 99	9.6569	12851	883744	1	33964	992620
98	9.6567	78886	891124	1	34017	048082
97	9.6566	44869	843042	1	34069	135683
96	9.6565	10800	707359	1	34121	255452
29 95	9.6563	76679	451907	.0001	34173	407424
94	9.6562	42506	044483	1	34225	591629
93	9.6561	08280	452854	1	34277	808101
92	9.6559	74002	644753	1	34330	056873
91	9.6558	39672	587880	1	34382	337975
29 90	9.6557	05290	249905	.0001	34434	651444
89	9.6555	70855	598461	1	34486	997307
88	9.6554	36368	601154	1	34539	375602
87	9.6553	01829	225552	1	34591	786359
86	9.6551	67237	439193	1	34644	229610
29 85	9.6550	32593	209583	.0001	34696	705391
84	9.6548	97896	504192	1	34749	213731
83	9.6547	63147	290461	1	34801	754666
82	9.6546	28345	535795	1	34854	328227
81	9.6544	93491	207568	1	34906	934448
29 80	9.6543	58584	273120	.0001	34959	573362
79	9.6542	23624	699758	1	35012	245001
78	9.6540	88612	454757	1	35064	949401
77	9.6539	53547	505356	1	35117	686591
76	9.6538	18429	818765	1	35170	456608
29 75	9.6536	83259	362157	.0001	35223	259482
74	9.6535	48036	102675	1	35276	095250
73	9.6534	12760	007425	1	35328	963942
72	9.6532	77431	043483	1	35381	865593
71	9.6531	42049	177890	1	35434	800236
29 70	9.6530	06614	377654	.0001	35487	767905
69	9.6528	71126	609749	1	35540	768633
68	9.6527	35585	841116	1	35593	802453
67	9.6525	99992	038663	1	35646	869401
66	9.6524	64345	169262	1	35699	969508
29 65	9.6523	28645	199754	.0001	35753	102809
64	9.6521	92892	096945	1	35806	269338
63	9.6520	57085	827607	1	35859	469127
62	9.6519	21226	358480	1	35912	702213
61	9.6517	85313	656267	1	35965	968626
29 60	9.6516	49347	687641	.0001	36019	268404



## Log Sines

c	log. sin.			$\Delta^1$		
29 60	9.6516	49347	687641	.0001	36019	268404
59	9.6515	13328	419237	1	36072	601578
58	9.6513	77255	817659	1	36125	968183
57	9.6512	41129	849476	1	36179	368253
56	9.6511	04950	481223	1	36232	801823
29 55	9.6509	68717	679400	.0001	36286	268926
54	9.6508	32431	410474	1	36339	769596
53	9.6506	96091	640878	1	36393	303869
52	9.6505	59698	337009	1	36446	871778
51	9.6504	23251	465231	1	36500	473357
29 50	9.6502	86750	991874	.0001	36554	108641
49	9.6501	50196	883233	1	36607	777665
48	9.6500	13589	105568	1	36661	480462
47	9.6498	76927	625106	1	36715	217069
46	9.6497	40212	408037	1	36768	987518
29 45	9.6496	03443	420519	.0001	36822	791844
44	9.6494	66620	628675	1	36876	630084
43	9.6493	29743	998591	1	36930	502270
42	9.6491	92813	496321	1	36984	408438
41	9.6490	55829	087883	1	37038	348622
29 40	9.6489	18790	739261	.0001	37092	322860
39	9.6487	81698	416401	1	37146	331182
38	9.6486	44552	085219	1	37200	373627
37	9.6485	07351	711592	1	37254	450228
36	9.6483	70097	261364	1	37308	561020
29 35	9.6482	32788	700344	.0001	37362	706039
34	9.6480	95425	994305	1	37416	885320
33	9.6479	58009	108985	1	37471	098898
32	9.6478	20538	010087	1	37525	346809
31	9.6476	83012	663278	1	37579	629086
29 30	9.6475	45433	034192	.0001	37633	945767
29	9.6474	07799	088425	1	37688	296886
28	9.6472	70110	791539	1	37742	682479
27	9.6471	32368	109060	1	37797	102581
26	9.6469	94571	006479	1	37851	557229
29 25	9.6468	56719	449250	.0001	37906	046455
24	9.6467	18813	402795	1	37960	570299
23	9.6465	80852	832496	1	38015	128795
22	9.6464	42837	703701	1	38069	721977
21	9.6463	04767	981724	1	38124	349882
29 20	9.6461	66643	631842	.0001	38179	012548

## Log Sines

c	log. sin.			$\Delta^1$		
29 20	9.6461	66643	631842	.0001	38179	012548
19	9.6460	28464	619294	1	38233	710008
18	9.6458	90230	909286	1	38288	442300
17	9.6457	51942	466986	1	38343	209456
16	9.6456	13599	257530	1	38398	011518
29 15	9.6454	75201	246012	.0001	38452	848518
14	9.6453	36748	397494	1	38507	720493
13	9.6451	98240	677001	1	38562	627479
12	9.6450	59678	049522	1	38617	569513
11	9.6449	21060	480009	1	38672	546631
29 10	9.6447	82387	933378	.0001	38727	558869
09	9.6446	43660	374509	1	38782	606264
08	9.6445	04877	768245	1	38837	688851
07	9.6443	66040	079394	1	38892	806668
06	9.6442	27147	272726	1	38947	959752
29 05	9.6440	88199	312974	.0001	39003	148137
04	9.6439	49196	164837	1	39058	371862
03	9.6438	10137	792975	1	39113	630963
02	9.6436	71024	162012	1	39168	925476
01	9.6435	31855	236536	1	39224	255439
29 00	9.6433	92630	981097	.0001	39279	620889
28 99	9.6432	53351	360208	1	39335	021860
98	9.6431	14016	338348	1	39390	458393
97	9.6429	74625	879955	1	39445	930523
96	9.6428	35179	949432	1	39501	438286
28 95	9.6426	95678	511146	.0001	39556	981721
94	9.6425	56121	529425	1	39612	560863
93	9.6424	16508	968562	1	39668	175753
92	9.6422	76840	792809	1	39723	826424
91	9.6421	37116	966385	1	39779	512915
28 90	9.6419	97337	453470	.0001	39835	235264
89	9.6418	57502	218206	1	39890	993508
88	9.6417	17611	224698	1	39946	787684
87	9.6415	77664	437014	1	40002	617829
86	9.6414	37661	819185	1	40058	483982
28 85	9.6412	97603	335203	.0001	40114	386180
84	9.6411	57488	949023	1	40170	324461
83	9.6410	17318	624562	1	40226	298861
82	9.6408	77092	325701	1	40282	309420
81	9.6407	36810	016281	1	40338	356175
28 80	9.6405	96471	660106	.0001	40394	439163

## Log Sines

c	log. sin.			$\Delta^1$		
28 80	9.6405	96471	660106	.0001	40394	439163
79	9.6404	56077	220943	1	40450	558422
78	9.6403	15626	662521	1	40506	713993
77	9.6401	75119	948528	1	40562	905910
76	9.6400	34557	042618	1	40619	134212
28 75	9.6398	93937	908406	.0001	40675	398940
74	9.6397	53262	509466	1	40731	700128
73	9.6396	12530	809338	1	40788	037817
72	9.6394	71742	771521	1	40844	412045
71	9.6393	30898	359476	1	40900	822849
28 70	9.6391	89997	536627	.0001	40957	270269
69	9.6390	49040	266358	1	41013	754342
68	9.6389	08026	512016	1	41070	275109
67	9.6387	66956	236907	1	41126	832604
66	9.6386	25829	404303	1	41183	426871
28 65	9.6384	84645	977432	.0001	41240	057945
64	9.6383	43405	919487	1	41296	725865
63	9.6382	02109	193622	1	41353	430672
62	9.6380	60755	762950	1	41410	172403
61	9.6379	19345	590547	1	41466	951097
28 60	9.6377	77878	639450	.0001	41523	766793
59	9.6376	36354	872657	1	41580	619530
58	9.6374	94774	253127	1	41637	509348
57	9.6373	53136	743779	1	41694	436285
56	9.6372	11442	307494	1	41751	400380
28 55	9.6370	69690	907114	.0001	41808	401674
54	9.6369	27882	505440	1	41865	440204
53	9.6367	86017	065236	1	41922	516010
52	9.6366	44094	549226	1	41979	629132
51	9.6365	02114	920094	1	42036	779609
28 50	9.6363	60078	140485	.0001	42093	967481
49	9.6362	17984	173004	1	42151	192787
48	9.6360	75832	980217	1	42208	455566
47	9.6359	33624	524651	1	42265	755859
46	9.6357	91358	768792	1	42323	093705
28 45	9.6356	49035	675087	.0001	42380	469144
44	9.6355	06655	205943	1	42437	882215
43	9.6353	64217	323728	1	42495	332959
42	9.6352	21721	990769	1	42552	821415
41	9.6350	79169	169354	1	42610	347624
28 40	9.6349	36558	821730	.0001	42667	911624

## Log Sines

c	log. sin.			$\Delta^1$		
28 40	9.6349	36558	821730	.0001	42667	911624
39	9.6347	93890	910106	1	42725	513459
38	9.6346	51165	396647	1	42783	153165
37	9.6345	08382	243482	1	42840	830784
36	9.6343	65541	412698	1	42898	546357
28 35	9.6342	22642	866341	.0001	42956	299922
34	9.6340	79686	566419	1	43014	091523
33	9.6339	36672	474896	1	43071	921197
32	9.6337	93600	553699	1	43129	788985
31	9.6336	50470	764714	1	43187	694931
28 30	9.6335	07283	069783	.0001	43245	639070
29	9.6333	64037	430713	1	43303	621448
28	9.6332	20733	809265	1	43361	642102
27	9.6330	77372	167163	1	43419	701075
26	9.6329	33952	466088	1	43477	798406
28 25	9.6327	90474	667682	.0001	43535	934138
24	9.6326	46938	733544	1	43594	108311
23	9.6325	03344	625233	1	43652	320964
22	9.6323	59692	304269	1	43710	572142
21	9.6322	15981	732127	1	43768	861883
28 20	9.6320	72212	870244	.0001	43827	190229
19	9.6319	28385	680015	1	43885	557223
18	9.6317	84500	122792	1	43943	962903
17	9.6316	40556	159889	1	44002	407313
16	9.6314	96553	752576	1	44060	890494
28 15	9.6313	52492	862082	.0001	44119	412487
14	9.6312	08373	449595	1	44177	973333
13	9.6310	64195	476262	1	44236	573074
12	9.6309	19958	903188	1	44295	211752
11	9.6307	75663	691436	1	44353	889410
28 10	9.6306	31309	802026	.0001	44412	606087
09	9.6304	86897	195939	1	44471	361826
08	9.6303	42425	834113	1	44530	156670
07	9.6301	97895	677443	1	44588	990660
06	9.6300	53306	686783	1	44647	863838
28 05	9.6299	08658	822945	.0001	44706	776245
04	9.6297	63952	046700	1	44765	727925
03	9.6296	19186	318775	1	44824	718920
02	9.6294	74361	599855	1	44883	749272
01	9.6293	29477	850583	1	44942	819022
28 00	9.6291	84535	031561	.0001	45001	928213

## Log Sines

c	log. sin.			$\Delta^1$		
28 00	9.6291	84535	031561	.0001	45001	928213
27 99	9.6290	39533	103348	1	45061	076889
98	9.6288	94472	026459	1	45120	265092
97	9.6287	49351	761367	1	45179	492862
96	9.6286	04172	268505	1	45238	760244
27 95	9.6284	58933	508261	.0001	45298	067282
94	9.6283	13635	440979	1	45357	414014
93	9.6281	68278	026965	1	45416	800489
92	9.6280	22861	226476	1	45476	226744
91	9.6278	77384	999732	1	45535	692825
27 90	9.6277	31849	306907	.0001	45595	198776
89	9.6275	86254	108131	1	45654	744637
88	9.6274	40599	363494	1	45714	330453
87	9.6272	94885	033041	1	45773	956268
86	9.6271	49111	076773	1	45833	622122
27 85	9.6270	03277	454651	.0001	45893	328062
84	9.6268	57384	126589	1	45953	074129
83	9.6267	11431	052460	1	46012	860368
82	9.6265	65418	192092	1	46072	686821
81	9.6264	19345	505271	1	46132	553532
27 80	9.6262	73212	951739	.0001	46192	460545
79	9.6261	27020	491194	1	46252	407903
78	9.6259	80768	083291	1	46312	395651
77	9.6258	34455	687640	1	46372	423832
76	9.6256	88083	263808	1	46432	492489
27 75	9.6255	41650	771319	.0001	46492	601667
74	9.6253	95158	169652	1	46552	751410
73	9.6252	48605	418242	1	46612	941762
72	9.6251	01992	476480	1	46673	172767
71	9.6249	55319	303713	1	46733	444468
27 70	9.6248	08585	859245	.0001	46793	756911
69	9.6246	61792	102334	1	46854	110140
68	9.6245	14937	992194	1	46914	504198
67	9.6243	68023	487996	1	46974	939131
66	9.6242	21048	548865	1	47035	414983
27 65	9.6240	74013	133882	.0001	47095	931799
64	9.6239	26917	202083	1	47156	489622
63	9.6237	79760	712461	1	47217	088499
62	9.6236	32543	623962	1	47277	728472
61	9.6234	85265	895490	1	47338	409588
27 60	9.6233	37927	485902	.0001	47399	131892

## Log Sines

c	log. sin.			$\Delta^1$		
27 60	9.6233	37927	485902	.0001	47399	131892
59	9.6231	90528	354010	1	47459	895427
58	9.6230	43068	458583	1	47520	700240
57	9.6228	95547	758343	1	47581	546375
56	9.6227	47966	211968	1	47642	433877
27 55	9.6226	00323	778091	.0001	47703	362792
54	9.6224	52620	415299	1	47764	333166
53	9.6223	04856	082133	1	47825	345041
52	9.6221	57030	737092	1	47886	398467
51	9.6220	09144	338625	1	47947	493485
27 50	9.6218	61196	845140	.0001	48008	630144
49	9.6217	13188	214996	1	48069	808487
48	9.6215	65118	406509	1	48131	028562
47	9.6214	16987	377947	1	48192	290414
46	9.6212	68795	087533	1	48253	594088
27 45	9.6211	20541	493445	.0001	48314	939630
44	9.6209	72226	553815	1	48376	327086
43	9.6208	23850	226729	1	48437	756503
42	9.6206	75412	470226	1	48499	227927
41	9.6205	26913	242299	1	48560	741402
27 40	9.6203	78352	500897	.0001	48622	296976
39	9.6202	29730	203921	1	48683	894695
38	9.6200	81046	309226	1	48745	534606
37	9.6199	32300	774620	1	48807	216755
36	9.6197	83493	557865	1	48868	941187
27 35	9.6196	34624	616678	.0001	48930	707950
34	9.6194	85693	908728	1	48992	517090
33	9.6193	36701	391638	1	49054	368655
32	9.6191	87647	022983	1	49116	262691
31	9.6190	38530	760292	1	49178	199243
27 30	9.6188	89352	561049	.0001	49240	178361
29	9.6187	40112	382688	1	49302	200090
28	9.6185	90810	182598	1	49364	264477
27	9.6184	41445	918121	1	49426	371570
26	9.6182	92019	546551	1	49488	521416
27 25	9.6181	42531	025135	.0001	49550	714061
24	9.6179	92980	311074	1	49612	949553
23	9.6178	43367	361521	1	49675	227942
22	9.6176	93692	133579	1	49737	549270
21	9.6175	43954	584309	1	49799	913589
27 20	9.6173	94154	670720	.0001	49862	320946

## Log Sines

c	log. sin.			$\Delta^1$		
27 20	9.6173	94154	670720	.0001	49862	320946
19	9.6172	44292	349774	1	49924	771386
18	9.6170	94367	578388	1	49987	264960
17	9.6169	44380	313428	1	50049	801713
16	9.6167	94330	511715	1	50112	381695
27 15	9.6166	44218	130020	.0001	50175	004952
14	9.6164	94043	125068	1	50237	671535
13	9.6163	43805	453533	1	50300	381488
12	9.6161	93505	072045	1	50363	134863
11	9.6160	43141	937182	1	50425	931706
27 10	9.6158	92716	005476	.0001	50488	772065
09	9.6157	42227	233411	1	50551	655990
08	9.6155	91675	577421	1	50614	583528
07	9.6154	41060	993893	1	50677	554728
06	9.6152	90383	439165	1	50740	569639
27 05	9.6151	39642	869526	.0001	50803	628310
04	9.6149	88839	241216	1	50866	730787
03	9.6148	37972	510429	1	50929	877122
02	9.6146	87042	633307	1	50993	067363
01	9.6145	36049	565944	1	51056	301558
27 00	9.6143	84993	264386	.0001	51119	579756
26 99	9.6142	33873	684630	1	51182	902008
98	9.6140	82690	782622	1	51246	268360
97	9.6139	31444	514262	1	51309	678865
96	9.6137	80134	835397	1	51373	133568
26 95	9.6136	28761	701829	.0001	51436	632523
94	9.6134	77325	069306	1	51500	175775
93	9.6133	25824	893531	1	51563	763377
92	9.6131	74261	130154	1	51627	395376
91	9.6130	22633	734778	1	51691	071824
26 90	9.6128	70942	662954	.0001	51754	792769
89	9.6127	19187	870185	1	51818	558261
88	9.6125	67369	311924	1	51882	368352
87	9.6124	15486	943572	1	51946	223088
86	9.6122	63540	720484	1	52010	122522
26 85	9.6121	11530	597962	.0001	52074	066703
84	9.6119	59456	531259	1	52138	055683
83	9.6118	07318	475576	1	52202	089510
82	9.6116	55116	386066	1	52266	168234
81	9.6115	02850	217832	1	52330	291908
26 80	9.6113	50519	925924	.0001	52394	460580

## Log Sines

c	log. sin.			$\Delta^1$		
26 80	9.6113	50519	925924	.0001	52394	460580
79	9.6111	98125	465344	1	52458	674302
78	9.6110	45666	791042	1	52522	933124
77	9.6108	93143	857918	1	52587	237097
76	9.6107	40556	620821	1	52651	586272
26 75	9.6105	87905	034549	.0001	52715	980698
74	9.6104	35189	053851	1	52780	420430
73	9.6102	82408	633421	1	52844	905514
72	9.6101	29563	727907	1	52909	436005
71	9.6099	76654	291902	1	52974	011952
26 70	9.6098	23680	279950	.0001	53038	633408
69	9.6096	70641	646542	1	53103	300421
68	9.6095	17538	346121	1	53168	013047
67	9.6093	64370	333074	1	53232	771335
66	9.6092	11137	561739	1	53297	575334
26 65	9.6090	57839	986405	.0001	53362	425102
64	9.6089	04477	561303	1	53427	320684
63	9.6087	51050	240619	1	53492	262136
62	9.6085	97557	978483	1	53557	249508
61	9.6084	44000	728975	1	53622	282854
26 60	9.6082	90378	446121	.0001	53687	362223
59	9.6081	36691	083898	1	53752	487670
58	9.6079	82938	596228	1	53817	659244
57	9.6078	29120	936984	1	53882	877001
56	9.6076	75238	059983	1	53948	140990
26 55	9.6075	21289	918993	.0001	54013	451266
54	9.6073	67276	467727	1	54078	807879
53	9.6072	13197	659848	1	54144	210884
52	9.6070	59053	448964	1	54209	660331
51	9.6069	04843	788633	1	54275	156276
26 50	9.6067	50568	632357	.0001	54340	698769
49	9.6065	96227	933588	1	54406	287863
48	9.6064	41821	645725	1	54471	923614
47	9.6062	87349	722111	1	54537	606072
46	9.6061	32812	116039	1	54603	335290
26 45	9.6059	78208	780749	.0001	54669	111323
44	9.6058	23539	669426	1	54734	934224
43	9.6056	68804	735202	1	54800	804045
42	9.6055	14003	931157	1	54866	720840
41	9.6053	59137	210317	1	54932	684664
26 40	9.6052	04204	525653	.0001	54998	695569



## Log Sines

c	log. sin.			$\Delta^1$		
26 40	9.6052	04204	525653	.0001	54998	695569
39	9.6050	49205	830084	1	55064	753609
38	9.6048	94141	076475	1	55130	858837
37	9.6047	39010	217638	1	55197	011309
36	9.6045	83813	206329	1	55263	211077
26 35	9.6044	28549	995252	.0001	55329	458196
34	9.6042	73220	537056	1	55395	752720
33	9.6041	17824	784336	1	55462	094702
32	9.6039	62362	689634	1	55528	484198
31	9.6038	06834	205436	1	55594	921260
26 30	9.6036	51239	284176	.0001	55661	405947
29	9.6034	95577	878229	1	55727	938307
28	9.6033	39849	939922	1	55794	518401
27	9.6031	84055	421521	1	55861	146278
26	9.6030	28194	275243	1	55927	821998
26 25	9.6028	72266	453245	.0001	55994	545612
24	9.6027	16271	907633	1	56061	317176
23	9.6025	60210	590457	1	56128	136745
22	9.6024	04082	453712	1	56195	004376
21	9.6022	47887	449336	1	56261	920121
26 20	9.6020	91625	529215	.0001	56328	884037
19	9.6019	35296	645178	1	56395	896180
18	9.6017	78900	748998	1	56462	956603
17	9.6016	22437	792395	1	56530	065365
16	9.6014	65907	727030	1	56597	222517
26 15	9.6013	09310	504513	.0001	56664	428120
14	9.6011	52646	076393	1	56731	682225
13	9.6009	95914	394168	1	56798	984892
12	9.6008	39115	409276	1	56866	336173
11	9.6006	82249	073103	1	56933	736126
26 10	9.6005	25315	336977	.0001	57001	184808
09	9.6003	68314	152169	1	57068	682274
08	9.6002	11245	469895	1	57136	228580
07	9.6000	54109	241315	1	57203	823783
06	9.5998	96905	417532	1	57271	467939
26 05	9.5997	39633	949593	.0001	57339	161106
04	9.5995	82294	788487	1	57406	903338
03	9.5994	24887	885149	1	57474	694695
02	9.5992	67413	190454	1	57542	535230
01	9.5991	09870	655224	1	57610	425002
26 00	9.5989	52260	230222	.0001	57678	364069

## Log Sines

c	log. sin.			$\Delta^1$		
26 00	9.5989	52260	230222	.0001	57678	364069
25 99	9.5987	94581	866153	1	57746	352487
98	9.5986	36835	513666	1	57814	390312
97	9.5984	79021	123354	1	57882	477603
96	9.5983	21138	645751	1	57950	614416
25 95	9.5981	63188	031335	.0001	58018	800809
94	9.5980	05169	230526	1	58087	036841
93	9.5978	47082	193685	1	58155	322566
92	9.5976	88926	871119	1	58223	658046
91	9.5975	30703	213073	1	58292	043334
25 90	9.5973	72411	169739	.0001	58360	478493
89	9.5972	14050	691246	1	58428	963577
88	9.5970	55621	727669	1	58497	498646
87	9.5968	97124	229023	1	58566	083757
86	9.5967	38558	145266	1	58634	718969
25 85	9.5965	79923	426297	.0001	58703	404341
84	9.5964	21220	021956	1	58772	139928
83	9.5962	62447	882028	1	58840	925794
82	9.5961	03606	956234	1	58909	761993
81	9.5959	44697	194241	1	58978	648585
25 80	9.5957	85718	545656	.0001	59047	585629
79	9.5956	26670	960027	1	59116	573184
78	9.5954	67554	386843	1	59185	611310
77	9.5953	08368	775533	1	59254	700063
76	9.5951	49114	075470	1	59323	839505
25 75	9.5949	89790	235965	.0001	59393	029693
74	9.5948	30397	206272	1	59462	270689
73	9.5946	70934	935583	1	59531	562551
72	9.5945	11403	373032	1	59600	905336
71	9.5943	51802	467696	1	59670	299108
25 70	9.5941	92132	168588	.0001	59739	743925
69	9.5940	32392	424663	1	59809	239844
68	9.5938	72583	184819	1	59878	786930
67	9.5937	12704	397889	1	59948	385238
66	9.5935	52756	012651	1	60018	034832
25 65	9.5933	92737	977819	.0001	60087	735770
64	9.5932	32650	242049	1	60157	488111
63	9.5930	72492	753938	1	60227	291920
62	9.5929	12265	462018	1	60297	147252
61	9.5927	51968	314766	1	60367	054170
25 60	9.5925	91601	260596	.0001	60437	012736

## Log Sines

c	log. sin.			$\Delta^1$		
25 60	9.5925	91601	260596	.0001	60437	012736
59	9.5924	31164	247860	1	60507	023008
58	9.5922	70657	224852	1	60577	085049
57	9.5921	10080	139803	1	60647	198919
56	9.5919	49432	940884	1	60717	364678
25 55	9.5917	88715	576206	.0001	60787	582389
54	9.5916	27927	993817	1	60857	852112
53	9.5914	67070	141705	1	60928	173908
52	9.5913	06141	967797	1	60998	547840
51	9.5911	45143	419957	1	61068	973967
25 50	9.5909	84074	445990	.0001	61139	452353
49	9.5908	22934	993637	1	61209	983058
48	9.5906	61725	010579	1	61280	566145
47	9.5905	00444	444434	1	61351	201675
46	9.5903	39093	242759	1	61421	889711
25 45	9.5901	77671	353048	.0001	61492	630313
44	9.5900	16178	722735	1	61563	423544
43	9.5898	54615	299191	1	61634	269469
42	9.5896	92981	029722	1	61705	168146
41	9.5895	31275	861576	1	61776	119640
25 40	9.5893	69499	741936	.0001	61847	124013
39	9.5892	07652	617923	1	61918	181329
38	9.5890	45734	436594	1	61989	291647
37	9.5888	83745	144947	1	62060	455034
36	9.5887	21684	689913	1	62131	671551
25 35	9.5885	59553	018362	.0001	62202	941261
34	9.5883	97350	077101	1	62274	264227
33	9.5882	35075	812874	1	62345	640513
32	9.5880	72730	172361	1	62417	070182
31	9.5879	10313	102179	1	62488	553297
25 30	9.5877	47824	548882	.0001	62560	089922
29	9.5875	85264	458960	1	62631	680122
28	9.5874	22632	778838	1	62703	323957
27	9.5872	59929	454881	1	62775	021495
26	9.5870	97154	433386	1	62846	772797
25 25	9.5869	34307	660589	.0001	62918	577929
24	9.5867	71389	082660	1	62990	436954
23	9.5866	08398	645706	1	63062	349936
22	9.5864	45336	295770	1	63134	316940
21	9.5862	82201	978830	1	63206	338031
25 20	9.5861	18995	640799	.0001	63278	413273

## Log Sines

c	log. sin.			$\Delta^1$		
25 20	9.5861	18995	640799	.0001	63278	413273
19	9.5859	55717	227526	1	63350	542730
18	9.5857	92366	684796	1	63422	726467
17	9.5856	28943	958329	1	63494	964550
16	9.5854	65448	993779	1	63567	257042
25 15	9.5853	01881	736737	.0001	63639	604010
14	9.5851	38242	132727	1	63712	005519
13	9.5849	74530	127208	1	63784	461633
12	9.5848	10745	665575	1	63856	972417
11	9.5846	46888	693158	1	63929	537940
25 10	9.5844	82959	155218	.0001	64002	158262
09	9.5843	18956	996956	1	64074	833454
08	9.5841	54882	163502	1	64147	563579
07	9.5839	90734	599923	1	64220	348704
06	9.5838	26514	251219	1	64293	188893
25 05	9.5836	62221	062326	.0001	64366	084216
04	9.5834	97854	978110	1	64439	034734
03	9.5833	33415	943376	1	64512	040518
02	9.5831	68903	902858	1	64585	101632
01	9.5830	04318	801226	1	64658	218143
25 00	9.5828	39660	583083	.0001	64731	390119
24 99	9.5826	74929	192964	1	64804	617624
98	9.5825	10124	575340	1	64877	900726
97	9.5823	45246	674614	1	64951	239494
96	9.5821	80295	435120	1	65024	633992
24 95	9.5820	15270	801128	.0001	65098	084290
94	9.5818	50172	716838	1	65171	590452
93	9.5816	85001	126386	1	65245	152549
92	9.5815	19755	973837	1	65318	770645
91	9.5813	54437	203192	1	65392	444811
24 90	9.5811	89044	758381	.0001	65466	175113
89	9.5810	23578	583268	1	65539	961617
88	9.5808	58038	621651	1	65613	804395
87	9.5806	92424	817256	1	65687	703512
86	9.5805	26737	113744	1	65761	659036
24 85	9.5803	60975	454708	.0001	65835	671038
84	9.5801	95139	783670	1	65909	739584
83	9.5800	29230	044086	1	65983	864743
82	9.5798	63246	179343	1	66058	046585
81	9.5796	97188	132758	1	66132	285175
24 80	9.5795	31055	847583	.0001	66206	580586

## Log Sines

c	log. sin.			$\Delta^1$		
24 80	9.5795	31055	847583	.0001	66206	580586
79	9.5793	64849	266997	1	66280	932885
78	9.5791	98568	334112	1	66355	342140
77	9.5790	32212	991972	1	66429	808424
76	9.5788	65783	183548	1	66504	331801
24 75	9.5786	99278	851747	.0001	66578	912344
74	9.5785	32699	939403	1	66653	550122
73	9.5783	66046	389281	1	66728	245204
72	9.5781	99318	144077	1	66802	997659
71	9.5780	32515	146418	1	66877	807558
24 70	9.5778	65637	338860	.0001	66952	674970
69	9.5776	98684	663890	1	67027	599967
68	9.5775	31657	063923	1	67102	582617
67	9.5773	64554	481306	1	67177	622991
66	9.5771	97376	858315	1	67252	721160
24 65	9.5770	30124	137155	.0001	67327	877193
64	9.5768	62796	259962	1	67403	091162
63	9.5766	95393	168800	1	67478	363138
62	9.5765	27914	805662	1	67553	693190
61	9.5763	60361	112472	1	67629	081390
24 60	9.5761	92732	031082	.0001	67704	527810
59	9.5760	25027	503272	1	67780	032520
58	9.5758	57247	470752	1	67855	595592
57	9.5756	89391	875160	1	67931	217097
56	9.5755	21460	658063	1	68006	897107
24 55	9.5753	53453	760956	.0001	68082	635692
54	9.5751	85371	125264	1	68158	432927
53	9.5750	17212	692337	1	68234	288880
52	9.5748	48978	403457	1	68310	203626
51	9.5746	80668	199831	1	68386	177237
24 50	9.5745	12282	022594	.0001	68462	209783
49	9.5743	43819	812811	1	68538	301338
48	9.5741	75281	511473	1	68614	451974
47	9.5740	06667	059499	1	68690	661764
46	9.5738	37976	397735	1	68766	930781
24 45	9.5736	69209	466954	.0001	68843	259097
44	9.5735	00366	207857	1	68919	646786
43	9.5733	31446	561071	1	68996	093919
42	9.5731	62450	467152	1	69072	600572
41	9.5729	93377	866580	1	69149	166815
24 40	9.5728	24228	699765	.0001	69225	792726

## Log Sines

c	log. sin.			$\Delta^1$		
24 40	9.5728	24228	699765	.0001	69225	792726
39	9.5726	55002	907039	1	69302	478374
38	9.5724	85700	428665	1	69379	223834
37	9.5723	16321	204831	1	69456	029183
36	9.5721	46865	175648	1	69532	894489
24 35	9.5719	77332	281159	.0001	69609	819832
34	9.5718	07722	461327	1	69686	805283
33	9.5716	38035	656044	1	69763	850915
32	9.5714	68271	805129	1	69840	956806
31	9.5712	98430	848323	1	69918	123028
24 30	9.5711	28512	725295	.0001	69995	349657
29	9.5709	58517	375638	1	70072	636766
28	9.5707	88444	738872	1	70149	984432
27	9.5706	18294	754440	1	70227	392728
26	9.5704	48067	361712	1	70304	861731
24 25	9.5702	77762	499981	.0001	70382	391516
24	9.5701	07380	108465	1	70459	982156
23	9.5699	36920	126309	1	70537	633731
22	9.5697	66382	492578	1	70615	346311
21	9.5695	95767	146267	1	70693	119977
24 20	9.5694	25074	026290	.0001	70770	954802
19	9.5692	54303	071488	1	70848	850862
18	9.5690	83454	220626	1	70926	808234
17	9.5689	12527	412392	1	71004	826995
16	9.5687	41522	585397	1	71082	907220
24 15	9.5685	70439	678177	.0001	71161	048986
14	9.5683	99278	629191	1	71239	252369
13	9.5682	28039	376822	1	71317	517448
12	9.5680	56721	859374	1	71395	844296
11	9.5678	85326	015078	1	71474	232995
24 10	9.5677	13851	782083	.0001	71552	683617
09	9.5675	42299	098466	1	71631	196243
08	9.5673	70667	902223	1	71709	770950
07	9.5671	98958	131273	1	71788	407813
06	9.5670	27169	723460	1	71867	106912
24 05	9.5668	55302	616548	.0001	71945	868325
04	9.5666	83356	748223	1	72024	692129
03	9.5665	11332	056094	1	72103	578401
02	9.5663	39228	477693	1	72182	527221
01	9.5661	67045	950472	1	72261	538668
24 00	9.5659	94784	411804	.0001	72340	612817

## Log Sines

c	log. sin.			$\Delta^1$		
24 00	9.5659	94784	411804	.0001	72340	612817
23 99	9.5658	22443	798987	1	72419	749751
98	9.5656	50024	049236	1	72498	949544
97	9.5654	77525	099692	1	72578	212279
96	9.5653	04946	887413	1	72657	538033
23 95	9.5651	32289	349380	.0001	72736	926885
94	9.5649	59552	422495	1	72816	378915
93	9.5647	86736	043580	1	72895	894201
92	9.5646	13840	149379	1	72975	472825
91	9.5644	40864	676554	1	73055	114864
23 90	9.5642	67809	561690	.0001	73134	820399
89	9.5640	94674	741291	1	73214	589511
88	9.5639	21460	151780	1	73294	422277
87	9.5637	48165	729503	1	73374	318780
86	9.5635	74791	410723	1	73454	279099
23 85	9.5634	01337	131624	.0001	73534	303315
84	9.5632	27802	828309	1	73614	391509
83	9.5630	54188	436800	1	73694	543759
82	9.5628	80493	893041	1	73774	760150
81	9.5627	06719	132891	1	73855	040760
23 80	9.5625	32864	092131	.0001	73935	385670
79	9.5623	58928	706461	1	74015	794964
78	9.5621	84912	911497	1	74096	268721
77	9.5620	10816	642776	1	74176	807023
76	9.5618	36639	835753	1	74257	409951
23 75	9.5616	62382	425802	.0001	74338	077589
74	9.5614	88044	348213	1	74418	810016
73	9.5613	13625	538197	1	74499	607318
72	9.5611	39125	930879	1	74580	469572
71	9.5609	64545	461307	1	74661	396865
23 70	9.5607	89884	064442	.0001	74742	389278
69	9.5606	15141	675164	1	74823	446892
68	9.5604	40318	228272	1	74904	569791
67	9.5602	65413	658481	1	74985	758060
66	9.5600	90427	900421	1	75067	011778
23 65	9.5599	15360	888643	.0001	75148	331031
64	9.5597	40212	557612	1	75229	715902
63	9.5595	64982	841710	1	75311	166474
62	9.5593	89671	675236	1	75392	682829
61	9.5592	14278	992407	1	75474	265055
23 60	9.5590	38804	727352	.0001	75555	913232

## Log Sines

c	log. sin.			$\Delta^1$		
23 60	9.5590	38804	727352	.0001	75555	913232
59	9.5588	63248	814120	1	75637	627445
58	9.5586	87611	186675	1	75719	407780
57	9.5585	11891	778895	1	75801	254318
56	9.5583	36090	524577	1	75883	167146
23 55	9.5581	60207	357431	.0001	75965	146349
54	9.5579	84242	211082	1	76047	192010
53	9.5578	08195	019072	1	76129	304215
52	9.5576	32065	714857	1	76211	483048
51	9.5574	55854	231809	1	76293	728595
23 50	9.5572	79560	503214	.0001	76376	040942
49	9.5571	03184	462272	1	76458	420172
48	9.5569	26726	042100	1	76540	866374
47	9.5567	50185	175726	1	76623	379632
46	9.5565	73561	796094	1	76705	960031
23 45	9.5563	96855	836063	.0001	76788	607659
44	9.5562	20067	228404	1	76871	322600
43	9.5560	43195	905804	1	76954	104943
42	9.5558	66241	800861	1	77036	954773
41	9.5556	89204	846088	1	77119	872175
23 40	9.5555	12084	973913	.0001	77202	857240
39	9.5553	34882	116673	1	77285	910052
38	9.5551	57596	206621	1	77369	030698
37	9.5549	80227	175923	1	77452	219266
36	9.5548	02774	956657	1	77535	475843
23 35	9.5546	25239	480814	.0001	77618	800517
34	9.5544	47620	680297	1	77702	193377
33	9.5542	69918	486920	1	77785	654507
32	9.5540	92132	832413	1	77869	183999
31	9.5539	14263	648414	1	77952	781939
23 30	9.5537	36310	866475	.0001	78036	448416
29	9.5535	58274	418059	1	78120	183518
28	9.5533	80154	234541	1	78203	987335
27	9.5532	01950	247206	1	78287	859953
26	9.5530	23662	387253	1	78371	801463
23 25	9.5528	45290	585790	.0001	78455	811955
24	9.5526	66834	773835	1	78539	891515
23	9.5524	88294	882320	1	78624	040235
22	9.5523	09670	842085	1	78708	258204
21	9.5521	30962	583881	1	78792	545511
23 20	9.5519	52170	038370	.0001	78876	902246



## Log Sines

c	log. sin.			$\Delta^1$		
23 20	9.5519	52170	038370	.0001	78876	902246
19	9.5517	73293	136124	1	78961	328500
18	9.5515	94331	807624	1	79045	824362
17	9.5514	15285	983262	1	79130	389922
16	9.5512	36155	593340	1	79215	025272
23 15	9.5510	56940	568068	.0001	79299	730502
14	9.5508	77640	837566	1	79384	505701
13	9.5506	98256	331865	1	79469	350962
12	9.5505	18786	980903	1	79554	266377
11	9.5503	39232	714526	1	79639	252034
23 10	9.5501	59593	462492	.0001	79724	308026
09	9.5499	79869	154466	1	79809	434446
08	9.5498	00059	720020	1	79894	631384
07	9.5496	20165	088636	1	79979	898932
06	9.5494	40185	189704	1	80065	237181
23 05	9.5492	60119	952523	.0001	80150	646227
04	9.5490	79969	306296	1	80236	126158
03	9.5488	99733	180138	1	80321	677069
02	9.5487	19411	503069	1	80407	299053
01	9.5485	39004	204016	1	80492	992199
23 00	9.5483	58511	211817	.0001	80578	756606
22 99	9.5481	77932	455211	1	80664	592362
98	9.5479	97267	862849	1	80750	499563
97	9.5478	16517	363286	1	80836	478302
96	9.5476	35680	884984	1	80922	528672
22 95	9.5474	54758	356312	.0001	81008	650768
94	9.5472	73749	705544	1	81094	844682
93	9.5470	92654	860862	1	81181	110510
92	9.5469	11473	750352	1	81267	448346
91	9.5467	30206	302006	1	81353	858284
22 90	9.5465	48852	443722	.0001	81440	340418
89	9.5463	67412	103304	1	81526	894844
88	9.5461	85885	208460	1	81613	521657
87	9.5460	04271	686803	1	81700	220951
86	9.5458	22571	465852	1	81786	992822
22 85	9.5456	40784	473030	.0001	81873	837365
84	9.5454	58910	635665	1	81960	754677
83	9.5452	76949	880988	1	82047	744852
82	9.5450	94902	136136	1	82134	807987
81	9.5449	12767	328149	1	82221	944178
22 80	9.5447	30545	383971	.0001	82309	153521

## Log Sines

c	log. sin.			$\Delta^1$		
22 80	9.5447	30545	383971	.0001	82309	153521
79	9.5445	48236	230450	1	82396	436112
78	9.5443	65839	794338	1	82483	792049
77	9.5441	83356	002289	1	82571	221429
76	9.5440	00784	780860	1	82658	724346
22 75	9.5438	18126	056514	.0001	82746	300900
74	9.5436	35379	755614	1	82833	951188
73	9.5434	52545	804426	1	82921	675307
72	9.5432	69624	129119	1	83009	473355
71	9.5430	86614	655764	1	83097	345428
22 70	9.5429	03517	310336	.0001	83185	291627
69	9.5427	20332	018709	1	83273	312047
68	9.5425	37058	706662	1	83361	406790
67	9.5423	53697	299872	1	83449	575951
66	9.5421	70247	723921	1	83537	819632
22 65	9.5419	86709	904289	.0001	83626	137928
64	9.5418	03083	766361	1	83714	530941
63	9.5416	19369	235420	1	83802	998770
62	9.5414	35566	236650	1	83891	541514
61	9.5412	51674	695136	1	83980	159271
22 60	9.5410	67694	535865	.0001	84068	852142
59	9.5408	83625	683723	1	84157	620229
58	9.5406	99468	063494	1	84246	463628
57	9.5405	15221	599866	1	84335	382443
56	9.5403	30886	217423	1	84424	376772
22 55	9.5401	46461	840651	.0001	84513	446717
54	9.5399	61948	393934	1	84602	592377
53	9.5397	77345	801557	1	84691	813856
52	9.5395	92653	987701	1	84781	111253
51	9.5394	07872	876448	1	84870	484669
22 50	9.5392	23002	391779	.0001	84959	934208
49	9.5390	38042	457571	1	85049	459968
48	9.5388	52992	997603	1	85139	062055
47	9.5386	67853	935548	1	85228	740567
46	9.5384	82625	194981	1	85318	495610
22 45	9.5382	97306	699371	.0001	85408	327284
44	9.5381	11898	372087	1	85498	235693
43	9.5379	26400	136394	1	85588	220938
42	9.5377	40811	915456	1	85678	283124
41	9.5375	55133	632332	1	85768	422353
22 40	9.5373	69365	209979	.0001	85858	638728

## Log Sines

c	log. sin.			$\Delta^1$		
22 40	9.5373	69365	209979	.0001	85858	638728
39	9.5371	83506	571251	1	85948	932355
38	9.5369	97557	638896	1	86039	303335
37	9.5368	11518	335561	1	86129	751773
36	9.5366	25388	583788	1	86220	277772
22 35	9.5364	39168	306016	.0001	86310	881438
34	9.5362	52857	424578	1	86401	562876
33	9.5360	66455	861702	1	86492	322187
32	9.5358	79963	539515	1	86583	159479
31	9.5356	93380	380036	1	86674	074857
22 30	9.5355	06706	305179	.0001	86765	068425
29	9.5353	19941	236754	1	86856	140289
28	9.5351	33085	096465	1	86947	290554
27	9.5349	46137	805911	1	87038	519327
26	9.5347	59099	286584	1	87129	826713
22 25	9.5345	71969	459871	.0001	87221	212817
24	9.5343	84748	247054	1	87312	677749
23	9.5341	97435	569305	1	87404	221612
22	9.5340	10031	347693	1	87495	844515
21	9.5338	22535	503178	1	87587	546563
22 20	9.5336	34947	956615	.0001	87679	327864
19	9.5334	47268	628751	1	87771	188526
18	9.5332	59497	440225	1	87863	128656
17	9.5330	71634	311569	1	87955	148362
16	9.5328	83679	163207	1	88047	247750
22 15	9.5326	95631	915457	.0001	88139	426932
14	9.5325	07492	488525	1	88231	686012
13	9.5323	19260	802513	1	88324	025102
12	9.5321	30936	777411	1	88416	444307
11	9.5319	42520	333104	1	88508	943740
22 10	9.5317	54011	389364	.0001	88601	523507
09	9.5315	65409	865857	1	88694	183720
08	9.5313	76715	682137	1	88786	924484
07	9.5311	87928	757653	1	88879	745914
06	9.5309	99049	011739	1	88972	648116
22 05	9.5308	10076	363623	.0001	89065	631203
04	9.5306	21010	732420	1	89158	695282
03	9.5304	31852	037138	1	89251	840465
02	9.5302	42600	196673	1	89345	066865
01	9.5300	53255	129808	1	89438	374589
22 00	9.5298	63816	755219	.0001	89531	763750

## Log Sines

c	log. sin.			$\Delta^1$		
22 00	9.5298	63816	755219	.0001	89531	763750
21 99	9.5296	74284	991469	1	89625	234460
98	9.5294	84659	757009	1	89718	786828
97	9.5292	94940	970181	1	89812	420969
96	9.5291	05128	549212	1	89906	136992
21 95	9.5289	15222	412220	.0001	89999	935010
94	9.5287	25222	477210	1	90093	815137
93	9.5285	35128	662073	1	90187	777482
92	9.5283	44940	884591	1	90281	822161
91	9.5281	54659	062430	1	90375	949285
21 90	9.5279	64283	113145	.0001	90470	158969
89	9.5277	73812	954176	1	90564	451323
88	9.5275	83248	502853	1	90658	826465
87	9.5273	92589	676388	1	90753	284504
86	9.5272	01836	391884	1	90847	825557
21 85	9.5270	10988	566327	.0001	90942	449738
84	9.5268	20046	116589	1	91037	157161
83	9.5266	29008	959428	1	91131	947939
82	9.5264	37877	011489	1	91226	822189
81	9.5262	46650	189300	1	91321	780025
21 80	9.5260	55328	409275	.0001	91416	821563
79	9.5258	63911	587712	1	91511	946916
78	9.5256	72399	640796	1	91607	156203
77	9.5254	80792	484593	1	91702	449538
76	9.5252	89090	035055	1	91797	827036
21 75	9.5250	97292	208019	.0001	91893	288816
74	9.5249	05398	919203	1	91988	834992
73	9.5247	13410	084211	1	92084	465682
72	9.5245	21325	618529	1	92180	181002
71	9.5243	29145	437527	1	92275	981071
21 70	9.5241	36869	456456	.0001	92371	866005
69	9.5239	44497	590451	1	92467	835920
68	9.5237	52029	754531	1	92563	890937
67	9.5235	59465	863594	1	92660	031171
66	9.5233	66805	832423	1	92756	256743
21 65	9.5231	74049	575680	.0001	92852	567769
64	9.5229	81197	007911	1	92948	964369
63	9.5227	88248	043542	1	93045	446661
62	9.5225	95202	596881	1	93142	014766
61	9.5224	02060	582115	1	93238	668800
21 60	9.5222	08821	913315	.0001	93335	408886

## Log Sines

c	log. sin.			$\Delta^1$		
21 60	9.5222	08821	913315	.0001	93335	408886
59	9.5220	15486	504429	1	93432	235141
58	9.5218	22054	269288	1	93529	147688
57	9.5216	28525	121600	1	93626	146643
56	9.5214	34898	974957	1	93723	232129
21 55	9.5212	41175	742828	.0001	93820	404268
54	9.5210	47355	338560	1	93917	663179
53	9.5208	53437	675381	1	94015	008982
52	9.5206	59422	666399	1	94112	441800
51	9.5204	65310	224599	1	94209	961755
21 50	9.5202	71100	262844	.0001	94307	568968
49	9.5200	76792	693876	1	94405	263559
48	9.5198	82387	430317	1	94503	045655
47	9.5196	87884	384662	1	94600	915373
46	9.5194	93283	469289	1	94698	872840
21 45	9.5192	98584	596449	.0001	94796	918177
44	9.5191	03787	678272	1	94895	051506
43	9.5189	08892	626766	1	94993	272953
42	9.5187	13899	353813	1	95091	582639
41	9.5185	18807	771174	1	95189	980690
21 40	9.5183	23617	790484	.0001	95288	467230
39	9.5181	28329	323254	1	95387	042380
38	9.5179	32942	280874	1	95485	706269
37	9.5177	37456	574605	1	95584	459019
36	9.5175	41872	115586	1	95683	300755
21 35	9.5173	46188	814831	.0001	95782	231604
34	9.5171	50406	583227	1	95881	251689
33	9.5169	54525	331538	1	95980	361138
32	9.5167	58544	970400	1	96079	560076
31	9.5165	62465	410324	1	96178	848629
21 30	9.5163	66286	561695	.0001	96278	226923
29	9.5161	70008	334772	1	96377	695085
28	9.5159	73630	639687	1	96477	253243
27	9.5157	77153	386444	1	96576	901523
26	9.5155	80576	484921	1	96676	640051
21 25	9.5153	83899	844870	.0001	96776	468957
24	9.5151	87123	375913	1	96876	388369
23	9.5149	90246	987544	1	96976	398412
22	9.5147	93270	589132	1	97076	499218
21	9.5145	96194	089914	1	97176	690912
21 20	9.5143	99017	399002	.0001	97276	973626

## Log Sines

c	log. sin.			$\Delta^1$		
21 20	9.5143	99017	399002	.0001	97276	973626
19	9.5142	01740	425376	1	97377	347487
18	9.5140	04363	077889	1	97477	812625
17	9.5138	06885	265264	1	97578	369170
16	9.5136	09306	896094	1	97679	017251
21 15	9.5134	11627	878843	.0001	97779	756998
14	9.5132	13848	121845	1	97880	588542
13	9.5130	15967	533303	1	97981	512012
12	9.5128	17986	021291	1	98082	527541
11	9.5126	19903	493750	1	98183	635258
21 10	9.5124	21719	858492	.0001	98284	835295
09	9.5122	23435	023197	1	98386	127785
08	9.5120	25048	895412	1	98487	512856
07	9.5118	26561	382556	1	98588	990644
06	9.5116	27972	391912	1	98690	561279
21 05	9.5114	29281	830633	.0001	98792	224894
04	9.5112	30489	605739	1	98893	981622
03	9.5110	31595	624117	1	98995	831596
02	9.5108	32599	792521	1	99097	774949
01	9.5106	33502	017572	1	99199	811814
21 00	9.5104	34302	205758	.0001	99301	942326
20 99	9.5102	35000	263432	1	99404	166618
98	9.5100	35596	096814	1	99506	484825
97	9.5098	36089	611989	1	99608	897081
96	9.5096	36480	714908	1	99711	403522
20 95	9.5094	36769	311386	.0001	99814	004280
94	9.5092	36955	307106	1	99916	699495
93	9.5090	37038	607611	2	00019	489297
92	9.5088	37019	118314	2	00122	373827
91	9.5086	36896	744487	2	00225	353219
20 90	9.5084	36671	391268	.0002	00328	427607
89	9.5082	36342	963661	2	00431	597132
88	9.5080	35911	366529	2	00534	861928
87	9.5078	35376	504601	2	00638	222132
86	9.5076	34738	282469	2	00741	677883
20 85	9.5074	33996	604586	.0002	00845	229317
84	9.5072	33151	375269	2	00948	876575
83	9.5070	32202	498694	2	01052	619790
82	9.5068	31149	878904	2	01156	459106
81	9.5066	29993	419798	2	01260	394657
20 80	9.5064	28733	025141	.0002	01364	426586

## Log Sines

c	log. sin.			$\Delta^1$		
20 80	9.5064	28733	025141	.0002	01364	426586
79	9.5062	27368	598555	2	01468	555029
78	9.5060	25900	043526	2	01572	780127
77	9.5058	24327	263399	2	01677	102021
76	9.5056	22650	161378	2	01781	520848
20 75	9.5054	20868	640530	.0002	01886	036752
74	9.5052	18982	603778	2	01990	649870
73	9.5050	16991	953908	2	02095	360345
72	9.5048	14896	593563	2	02200	168317
71	9.5046	12696	425246	2	02305	073930
20 70	9.5044	10391	351316	.0002	02410	077323
69	9.5042	07981	273993	2	02515	178638
68	9.5040	05466	095355	2	02620	378018
67	9.5038	02845	717337	2	02725	675607
66	9.5036	00120	041730	2	02831	071544
20 65	9.5033	97288	970186	.0002	02936	565976
64	9.5031	94352	404210	2	03042	159045
63	9.5029	91310	245165	2	03147	850893
62	9.5027	88162	394272	2	03253	641666
61	9.5025	84908	752606	2	03359	531508
20 60	9.5023	81549	221098	.0002	03465	520561
59	9.5021	78083	700537	2	03571	608973
58	9.5019	74512	091564	2	03677	796888
57	9.5017	70834	294676	2	03784	084450
56	9.5015	67050	210226	2	03890	471805
20 55	9.5013	63159	738421	.0002	03996	959100
54	9.5011	59162	779321	2	04103	546482
53	9.5009	55059	232839	2	04210	234093
52	9.5007	50848	998746	2	04317	022085
51	9.5005	46531	976661	2	04423	910602
20 50	9.5003	42108	066059	.0002	04530	899792
49	9.5001	37577	166267	2	04637	989802
48	9.4999	32939	176465	2	04745	180781
47	9.4997	28193	995684	2	04852	472877
46	9.4995	23341	522807	2	04959	866237
20 45	9.4993	18381	656570	.0002	05067	361011
44	9.4991	13314	295559	2	05174	957349
43	9.4989	08139	338210	2	05282	655398
42	9.4987	02856	682812	2	05390	455308
41	9.4984	97466	227504	2	05498	357232
20 40	9.4982	91967	870272	.0002	05606	361316

## Log Sines

c	log. sin.			$\Delta^1$		
20 40	9.4982	91967	870272	.0002	05606	361316
39	9.4980	86361	508956	2	05714	467713
38	9.4978	80647	041243	2	05822	676573
37	9.4976	74824	364670	2	05930	988047
36	9.4974	68893	376623	2	06039	402287
20 35	9.4972	62853	974336	.0002	06147	919444
34	9.4970	56706	054892	2	06256	539671
33	9.4968	50449	515221	2	06365	263119
32	9.4966	44084	252102	2	06474	089941
31	9.4964	37610	162161	2	06583	020290
20 30	9.4962	31027	141871	.0002	06692	054320
29	9.4960	24335	087551	2	06801	192182
28	9.4958	17533	895369	2	06910	434034
27	9.4956	10623	461335	2	07019	780025
26	9.4954	03603	681310	2	07129	230314
20 25	9.4951	96474	450996	.0002	07238	785052
24	9.4949	89235	665944	2	07348	444397
23	9.4947	81887	221547	2	07458	208502
22	9.4945	74429	013045	2	07568	077525
21	9.4943	66860	935520	2	07678	051619
20 20	9.4941	59182	883901	.0002	07788	130942
19	9.4939	51394	752959	2	07898	315650
18	9.4937	43496	437309	2	08008	605902
17	9.4935	35487	831407	2	08119	001851
16	9.4933	27368	829556	2	08229	503658
20 15	9.4931	19139	325898	.0002	08340	111480
14	9.4929	10799	214418	2	08450	825474
13	9.4927	02348	388944	2	08561	645799
12	9.4924	93786	743145	2	08672	572614
11	9.4922	85114	170531	2	08783	606079
20 10	9.4920	76330	564452	.0002	08894	746350
09	9.4918	67435	818102	2	09005	993591
08	9.4916	58429	824511	2	09117	347958
07	9.4914	49312	476553	2	09228	809615
06	9.4912	40083	666938	2	09340	378721
20 05	9.4910	30743	288217	.0002	09452	055435
04	9.4908	21291	232782	2	09563	839922
03	9.4906	11727	392860	2	09675	732341
02	9.4904	02051	660519	2	09787	732854
01	9.4901	92263	927665	2	09899	841625
20 00	9.4899	82364	086040	.0002	10012	058815



## Log Sines

c	log. sin.			$\Delta^1$		
20 00	9.4899	82364	086040	.0002	10012	058815
19 99	9.4897	72352	027225	2	10124	384587
98	9.4895	62227	642638	2	10236	819106
97	9.4893	51990	823532	2	10349	362533
96	9.4891	41641	460999	2	10462	015033
19 95	9.4889	31179	445966	.0002	10574	776771
94	9.4887	20604	669195	2	10687	647909
93	9.4885	09917	021286	2	10800	628616
92	9.4882	99116	392670	2	10913	719054
91	9.4880	88202	673616	2	11026	919389
19 90	9.4878	77175	754227	.0002	11140	229788
89	9.4876	66035	524439	2	11253	650415
88	9.4874	54781	874024	2	11367	181440
87	9.4872	43414	692584	2	11480	823026
86	9.4870	31933	869558	2	11594	575343
19 85	9.4868	20339	294215	.0002	11708	438558
84	9.4866	08630	855657	2	11822	412837
83	9.4863	96808	442820	2	11936	498351
82	9.4861	84871	944469	2	12050	695267
81	9.4859	72821	249202	2	12165	003754
19 80	9.4857	60656	245448	.0002	12279	423982
79	9.4855	48376	821466	2	12393	956118
78	9.4853	35982	865348	2	12508	600336
77	9.4851	23474	265012	2	12623	356804
76	9.4849	10850	908208	2	12738	225691
19 75	9.4846	98112	682517	.0002	12853	207172
74	9.4844	85259	475345	2	12968	301414
73	9.4842	72291	173931	2	13083	508592
72	9.4840	59207	665339	2	13198	828876
71	9.4838	46008	836463	2	13314	262439
19 70	9.4836	32694	574024	.0002	13429	809454
69	9.4834	19264	764570	2	13545	470094
68	9.4832	05719	294476	2	13661	244532
67	9.4829	92058	049944	2	13777	132942
66	9.4827	78280	917002	2	13893	135497
19 65	9.4825	64387	781505	.0002	14009	252374
64	9.4823	50378	529131	2	14125	483745
63	9.4821	36253	045386	2	14241	829788
62	9.4819	22011	215598	2	14358	290676
61	9.4817	07652	924922	2	14474	866585
19 60	9.4814	93178	058337	.0002	14591	557694

## Log Sines

c	log. sin.			$\Delta^1$		
19 60	9.4814	93178	058337	.0002	14591	557694
59	9.4812	78586	500643	2	14708	364177
58	9.4810	63878	136466	2	14825	286211
57	9.4808	49052	850255	2	14942	323974
56	9.4806	34110	526281	2	15059	477646
19 55	9.4804	19051	048635	.0002	15176	747400
54	9.4802	03874	301235	2	15294	133419
53	9.4799	88580	167816	2	15411	635879
52	9.4797	73168	531937	2	15529	254960
51	9.4795	57639	276977	2	15646	990843
19 50	9.4793	41992	286134	.0002	15764	843705
49	9.4791	26227	442429	2	15882	813729
48	9.4789	10344	628700	2	16000	901093
47	9.4786	94343	727607	2	16119	105981
46	9.4784	78224	621626	2	16237	428572
19 45	9.4782	61987	193054	.0002	16355	869049
44	9.4780	45631	324005	2	16474	427593
43	9.4778	29156	896412	2	16593	104388
42	9.4776	12563	792024	2	16711	899615
41	9.4773	95851	892409	2	16830	813459
19 40	9.4771	79021	078950	.0002	16949	846103
39	9.4769	62071	232847	2	17068	997730
38	9.4767	45002	235117	2	17188	268526
37	9.4765	27813	966591	2	17307	658675
36	9.4763	10506	307916	2	17427	168361
19 35	9.4760	93079	139555	.0002	17546	797773
34	9.4758	75532	341782	2	17666	547093
33	9.4756	57865	794689	2	17786	416509
32	9.4754	40079	378180	2	17906	406207
31	9.4752	22172	971973	2	18026	516376
19 30	9.4750	04146	455597	.0002	18146	747202
29	9.4747	85999	708395	2	18267	098872
28	9.4745	67732	609523	2	18387	571576
27	9.4743	49345	037947	2	18508	165501
26	9.4741	30836	872446	2	18628	880837
19 25	9.4739	12207	991609	.0002	18749	717774
24	9.4736	93458	273835	2	18870	676500
23	9.4734	74587	597335	2	18991	757207
22	9.4732	55595	840128	2	19112	960084
21	9.4730	36482	880044	2	19234	285324
19 20	9.4728	17248	594720	.0002	19355	733117

## Log Sines

c	log. sin.			$\Delta^1$		
19 20	9.4728	17248	594720	.0002	19355	733117
19 19	9.4725	97892	861603	2	19477	303654
19 18	9.4723	78415	557949	2	19598	997128
19 17	9.4721	58816	560821	2	19720	813733
19 16	9.4719	39095	747088	2	19842	753660
19 15	9.4717	19252	993428	.0002	19964	817104
19 14	9.4714	99288	176324	2	20087	004256
19 13	9.4712	79201	172068	2	20209	315314
19 12	9.4710	58991	856754	2	20331	750470
19 11	9.4708	38660	106284	2	20454	309920
19 10	9.4706	18205	796364	.0002	20576	993859
19 09	9.4703	97628	802505	2	20699	802483
19 08	9.4701	76929	000022	2	20822	735989
19 07	9.4699	56106	264033	2	20945	794571
19 06	9.4697	35160	469462	2	21068	978430
19 05	9.4695	14091	491032	.0002	21192	287761
19 04	9.4692	92899	203271	2	21315	722761
19 03	9.4690	71583	480510	2	21439	283632
19 02	9.4688	50144	196878	2	21562	970568
19 01	9.4686	28581	226310	2	21686	783772
19 00	9.4684	06894	442538	.0002	21810	723442
18 99	9.4681	85083	719096	2	21934	789778
18 98	9.4679	63148	929318	2	22058	982981
18 97	9.4677	41089	946337	2	22183	303250
18 96	9.4675	18906	643087	2	22307	750789
18 95	9.4672	96598	892298	.0002	22432	325797
18 94	9.4670	74166	566501	2	22557	028479
18 93	9.4668	51609	538022	2	22681	859034
18 92	9.4666	28927	678988	2	22806	817669
18 91	9.4664	06120	861319	2	22931	904584
18 90	9.4661	83188	956735	.0002	23057	119984
18 89	9.4659	60131	836751	2	23182	464074
18 88	9.4657	36949	372677	2	23307	937058
18 87	9.4655	13641	435619	2	23433	539140
18 86	9.4652	90207	896479	2	23559	270529
18 85	9.4650	66648	625950	.0002	23685	131427
18 84	9.4648	42963	494523	2	23811	122042
18 83	9.4646	19152	372481	2	23937	242582
18 82	9.4643	95215	129899	2	24063	493253
18 81	9.4641	71151	636646	2	24189	874263
18 80	9.4639	46961	762383	.0002	24316	385820

## Log Sines

c	log. sin.			$\Delta^1$		
18 80	9.4639	46961	762383	.0002	24316	385820
79	9.4637	22645	376563	2	24443	028133
78	9.4634	98202	348430	2	24569	801411
77	9.4632	73632	547019	2	24696	705864
76	9.4630	48935	841155	2	24823	741701
18 75	9.4628	24112	099454	.0002	24950	909133
74	9.4625	99161	190321	2	25078	208371
73	9.4623	74082	981950	2	25205	639625
72	9.4621	48877	342325	2	25333	203109
71	9.4619	23544	139216	2	25460	899034
18 70	9.4616	98083	240182	.0002	25588	727612
69	9.4614	72494	512570	2	25716	689058
68	9.4612	46777	823512	2	25844	783583
67	9.4610	20933	039929	2	25973	011404
66	9.4607	94960	028525	2	26101	372733
18 65	9.4605	68858	655792	.0002	26229	867786
64	9.4603	42628	788006	2	26358	496778
63	9.4601	16270	291228	2	26487	259927
62	9.4598	89783	031301	2	26616	157447
61	9.4596	63166	873854	2	26745	189554
18 60	9.4594	36421	684300	.0002	26874	356468
59	9.4592	09547	327832	2	27003	658405
58	9.4589	82543	669427	2	27133	095585
57	9.4587	55410	573842	2	27262	668224
56	9.4585	28147	905618	2	27392	376542
18 55	9.4583	00755	529076	.0002	27522	220761
54	9.4580	73233	308315	2	27652	201099
53	9.4578	45581	107216	2	27782	317775
52	9.4576	17798	789441	2	27912	571014
51	9.4573	89886	218427	2	28042	961035
18 50	9.4571	61843	257392	.0002	28173	488060
49	9.4569	33669	769332	2	28304	152313
48	9.4567	05365	617019	2	28434	954014
47	9.4564	76930	663005	2	28565	893391
46	9.4562	48364	769614	2	28696	970663
18 45	9.4560	19667	798951	.0002	28828	186058
44	9.4557	90839	612893	2	28959	539800
43	9.4555	61880	073093	2	29091	032114
42	9.4553	32789	040979	2	29222	663225
41	9.4551	03566	377754	2	29354	433362
18 40	9.4548	74211	944392	.0002	29486	342749

## Log Sines

c	log. sin.			$\Delta^1$		
18 40	9.4548	74211	944392	.0002	29486	342749
39	9.4546	44725	601643	2	29618	391616
38	9.4544	15107	210027	2	29750	580188
37	9.4541	85356	629839	2	29882	908696
36	9.4539	55473	721143	2	30015	377367
18 35	9.4537	25458	343776	.0002	30147	986432
34	9.4534	95310	357344	2	30280	736119
33	9.4532	65029	621225	2	30413	626660
32	9.4530	34615	994565	2	30546	658286
31	9.4528	04069	336279	2	30679	831226
18 30	9.4525	73389	505053	.0002	30813	145714
29	9.4523	42576	359339	2	30946	601981
28	9.4521	11629	757358	2	31080	200263
27	9.4518	80549	557095	2	31213	940789
26	9.4516	49335	616306	2	31347	823797
18 25	9.4514	17987	792509	.0002	31481	849517
24	9.4511	86505	942992	2	31616	018189
23	9.4509	54889	924803	2	31750	330043
22	9.4507	23139	594760	2	31884	785321
21	9.4504	91254	809439	2	32019	384254
18 20	9.4502	59235	425185	.0002	32154	127082
19	9.4500	27081	298103	2	32289	014041
18	9.4497	94792	284062	2	32424	045372
17	9.4495	62368	238690	2	32559	221310
16	9.4493	29809	017380	2	32694	542096
18 15	9.4490	97114	475284	.0002	32830	007969
14	9.4488	64284	467315	2	32965	619170
13	9.4486	31318	848145	2	33101	375938
12	9.4483	98217	472207	2	33237	278516
11	9.4481	64980	193691	2	33373	327146
18 10	9.4479	31606	866545	.0002	33509	522067
09	9.4476	98097	344478	2	33645	863526
08	9.4474	64451	480952	2	33782	351763
07	9.4472	30669	129189	2	33918	987025
06	9.4469	96750	142164	2	34055	769555
18 05	9.4467	62694	372609	.0002	34192	699596
04	9.4465	28501	673013	2	34329	777397
03	9.4462	94171	895616	2	34467	003201
02	9.4460	59704	892415	2	34604	377258
01	9.4458	25100	515157	2	34741	899811
18 00	9.4455	90358	615346	.0002	34879	571112

## Log Sines

c	log. sin.			$\Delta^1$		
18 00	9.4455	90358	615346	.0002	34879	571112
17 99	9.4453	55479	044234	2	35017	391405
98	9.4451	20461	652829	2	35155	360943
97	9.4448	85306	291886	2	35293	479973
96	9.4446	50012	811913	2	35431	748744
17 95	9.4444	14581	063169	.0002	35570	167509
94	9.4441	79010	895660	2	35708	736517
93	9.4439	43302	159143	2	35847	456022
92	9.4437	07454	703121	2	35986	326272
91	9.4434	71468	376849	2	36125	347525
17 90	9.4432	35343	029324	.0002	36264	520029
89	9.4429	99078	509295	2	36403	844043
88	9.4427	62674	665252	2	36543	319817
87	9.4425	26131	345435	2	36682	947609
86	9.4422	89448	397826	2	36822	727672
17 85	9.4420	52625	670154	.0002	36962	660265
84	9.4418	15663	009889	2	37102	745643
83	9.4415	78560	264246	2	37242	984064
82	9.4413	41317	280182	2	37383	375784
81	9.4411	03933	904398	2	37523	921064
17 80	9.4408	66409	983334	.0002	37664	620162
79	9.4406	28745	363172	2	37805	473337
78	9.4403	90939	889835	2	37946	480849
77	9.4401	52993	408986	2	38087	642962
76	9.4399	14905	766024	2	38228	959932
17 75	9.4396	76676	806092	.0002	38370	432025
74	9.4394	38306	374067	2	38512	059503
73	9.4391	99794	314564	2	38653	842628
72	9.4389	61140	471936	2	38795	781664
71	9.4387	22344	690272	2	38937	876875
17 70	9.4384	83406	813397	.0002	39080	128528
69	9.4382	44326	684869	2	39222	536886
68	9.4380	05104	147983	2	39365	102217
67	9.4377	65739	045766	2	39507	824786
66	9.4375	26231	220980	2	39650	704861
17 65	9.4372	86580	516119	.0002	39793	742710
64	9.4370	46786	773409	2	39936	938603
63	9.4368	06849	834806	2	40080	292807
62	9.4365	66769	541999	2	40223	805593
61	9.4363	26545	736406	2	40367	477230
17 60	9.4360	86178	259176	.0002	40511	307991

## Log Sines

c	log. sin.			$\Delta^1$		
17 60	9.4360	86178	259176	.0002	40511	307991
59	9.4358	45666	951185	2	40655	298146
58	9.4356	05011	653039	2	40799	447968
57	9.4353	64212	205071	2	40943	757730
56	9.4351	23268	447341	2	41088	227705
17 55	9.4348	82180	219636	.0002	41232	858166
54	9.4346	40947	361470	2	41377	649391
53	9.4343	99569	712079	2	41522	601652
52	9.4341	58047	110427	2	41667	715227
51	9.4339	16379	395200	2	41812	990391
17 50	9.4336	74566	404809	.0002	41958	427422
49	9.4334	32607	977387	2	42104	026600
48	9.4331	90503	950787	2	42249	788199
47	9.4329	48254	162588	2	42395	712501
46	9.4327	05858	450087	2	42541	799787
17 45	9.4324	63316	650300	.0002	42688	050334
44	9.4322	20628	599966	2	42834	464427
43	9.4319	77794	135539	2	42981	042343
42	9.4317	34813	093196	2	43127	784369
41	9.4314	91685	308827	2	43274	690785
17 40	9.4312	48410	618042	.0002	43421	761877
39	9.4310	04988	856165	2	43568	997926
38	9.4307	61419	858239	2	43716	399220
37	9.4305	17703	459019	2	43863	966044
36	9.4302	73839	492975	2	44011	698683
17 35	9.4300	29827	794292	.0002	44159	597425
34	9.4297	85668	196867	2	44307	662557
33	9.4295	41360	534310	2	44455	894369
32	9.4292	96904	639941	2	44604	293147
31	9.4290	52300	346794	2	44752	859183
17 30	9.4288	07547	487611	.0002	44901	592766
29	9.4285	62645	894845	2	45050	494188
28	9.4283	17595	400657	2	45199	563740
27	9.4280	72395	836917	2	45348	801714
26	9.4278	27047	035203	2	45498	208403
17 25	9.4275	81548	826800	.0002	45647	784101
24	9.4273	35901	042699	2	45797	529103
23	9.4270	90103	513596	2	45947	443703
22	9.4268	44156	069893	2	46097	528196
21	9.4265	98058	541697	2	46247	782881
17 20	9.4263	51810	758816	.0002	46398	208052

## Log Sines

c	log. sin.			$\Delta^1$		
17 20	9.4263	51810	758816	.0002	46398	208052
19	9.4261	05412	550764	2	46548	804009
18	9.4258	58863	746755	2	46699	571050
17	9.4256	12164	175705	2	46850	509472
16	9.4253	65313	666233	2	47001	619579
17 15	9.4251	18312	046654	.0002	47152	901668
14	9.4248	71159	144986	2	47304	356041
13	9.4246	23854	788945	2	47455	983001
12	9.4243	76398	805944	2	47607	782851
11	9.4241	28791	023093	2	47759	755892
17 10	9.4238	81031	267201	.0002	47911	902431
09	9.4236	33119	364770	2	48064	222770
08	9.4233	85055	142000	2	48216	717216
07	9.4231	36838	424784	2	48369	386076
06	9.4228	88469	038708	2	48522	229656
17 05	9.4226	39946	809052	.0002	48675	248263
04	9.4223	91271	560789	2	48828	442206
03	9.4221	42443	118583	2	48981	811794
02	9.4218	93461	306789	2	49135	357338
01	9.4216	44325	949451	2	49289	079147
17 00	9.4213	95036	870304	.0002	49442	977533
16 99	9.4211	45593	892771	2	49597	052808
98	9.4208	95996	839963	2	49751	305284
97	9.4206	46245	534679	2	49905	735276
96	9.4203	96339	799403	2	50060	343097
16 95	9.4201	46279	456306	.0002	50215	129063
94	9.4198	96064	327243	2	50370	093487
93	9.4196	45694	233756	2	50525	236690
92	9.4193	95168	997066	2	50680	558986
91	9.4191	44488	438080	2	50836	060694
16 90	9.4188	93652	377386	.0002	50991	742132
89	9.4186	42660	635254	2	51147	603619
88	9.4183	91513	031635	2	51303	645479
87	9.4181	40209	386156	2	51459	868027
86	9.4178	88749	518129	2	51616	271590
16 85	9.4176	37133	246539	.0002	51772	856489
84	9.4173	85360	390050	2	51929	623044
83	9.4171	33430	767006	2	52086	571585
82	9.4168	81344	195421	2	52243	702431
81	9.4166	29100	492990	2	52401	015912
16 80	9.4163	76699	477078	.0002	52558	512352



## Log Sines

c	log. sin.			$\Delta^1$		
16 80	9.4163	76699	477078	.0002	52558	512352
79	9.4161	24140	964726	2	52716	192079
78	9.4158	71424	772647	2	52874	055420
77	9.4156	18550	717227	2	53032	102705
76	9.4153	65518	614522	2	53190	334262
16 75	9.4151	12328	280260	.0002	53348	750424
74	9.4148	58979	529836	2	53507	351519
73	9.4146	05472	178317	2	53666	137880
72	9.4143	51806	040437	2	53825	109841
71	9.4140	97980	930596	2	53984	267732
16 70	9.4138	43996	662864	.0002	54143	611892
69	9.4135	89853	050972	2	54303	142652
68	9.4133	35549	908320	2	54462	860350
67	9.4130	81087	047970	2	54622	765323
66	9.4128	26464	282647	2	54782	857905
16 65	9.4125	71681	424742	.0002	54943	138439
64	9.4123	16738	286303	2	55103	607262
63	9.4120	61634	679041	2	55264	264712
62	9.4118	06370	414329	2	55425	111134
61	9.4115	50945	303195	2	55586	146865
16 60	9.4112	95359	156330	.0002	55747	372251
59	9.4110	39611	784079	2	55908	787633
58	9.4107	83702	996446	2	56070	393357
57	9.4105	27632	603089	2	56232	189765
56	9.4102	71400	413324	2	56394	177204
16 55	9.4100	15006	236120	.0002	56556	356023
54	9.4097	58449	880097	2	56718	726566
53	9.4095	01731	153531	2	56881	289182
52	9.4092	44849	864349	2	57044	044222
51	9.4089	87805	820127	2	57206	992032
16 50	9.4087	30598	828095	.0002	57370	132967
49	9.4084	73228	695128	2	57533	467377
48	9.4082	15695	227751	2	57696	995612
47	9.4079	57998	232139	2	57860	718030
46	9.4077	00137	514109	2	58024	634981
16 45	9.4074	42112	879128	.0002	58188	746823
44	9.4071	83924	132305	2	58353	053909
43	9.4069	25571	078396	2	58517	556599
42	9.4066	67053	521797	2	58682	255248
41	9.4064	08371	266549	2	58847	150215
16 40	9.4061	49524	116334	.0002	59012	241861

## Log Sines

c	log. sin.			$\Delta^1$		
16 40	9.4061	49524	116334	.0002	59012	241861
39	9.4058	90511	874473	2	59177	530544
38	9.4056	31334	343929	2	59343	016627
37	9.4053	71991	327302	2	59508	700471
36	9.4051	12482	626831	2	59674	582439
16 35	9.4048	52808	044392	.0002	59840	662895
34	9.4045	92967	381497	2	60006	942204
33	9.4043	32960	439293	2	60173	420731
32	9.4040	72787	018562	2	60340	098842
31	9.4038	12446	919720	2	60506	976906
16 30	9.4035	51939	942814	.0002	60674	055289
29	9.4032	91265	887525	2	60841	334363
28	9.4030	30424	553162	2	61008	814495
27	9.4027	69415	738667	2	61176	496059
26	9.4025	08239	242608	2	61344	379424
16 25	9.4022	46894	863184	.0002	61512	464965
24	9.4019	85382	398219	2	61680	753055
23	9.4017	23701	645164	2	61849	244069
22	9.4014	61852	401095	2	62017	938381
21	9.4011	99834	462714	2	62186	836370
16 20	9.4009	37647	626344	.0002	62355	938412
19	9.4006	75291	687932	2	62525	244885
18	9.4004	12766	443047	2	62694	756168
17	9.4001	50071	686879	2	62864	472644
16	9.3998	87207	214235	2	63034	394692
16 15	9.3996	24172	819543	.0002	63204	522693
14	9.3993	60968	296850	2	63374	857032
13	9.3990	97593	439818	2	63545	398094
12	9.3988	34048	041724	2	63716	146260
11	9.3985	70331	895464	2	63887	101921
16 10	9.3983	06444	793543	.0002	64058	265460
09	9.3980	42386	528083	2	64229	637266
08	9.3977	78156	890817	2	64401	217728
07	9.3975	13755	673089	2	64573	007236
06	9.3972	49182	665853	2	64745	006182
16 05	9.3969	84437	659671	.0002	64917	214954
04	9.3967	19520	444717	2	65089	633949
03	9.3964	54430	810768	2	65262	263557
02	9.3961	89168	547211	2	65435	104175
01	9.3959	23733	443036	2	65608	156199
16 00	9.3956	58125	286837	.0002	65781	420024

## Log Sines

c	log. sin.			$\Delta^1$		
16 00	9.3956	58125	286837	.0002	65781	420024
15 99	9.3953	92343	866813	2	65954	896049
98	9.3951	26388	970764	2	66128	584671
97	9.3948	60260	386093	2	66302	486290
96	9.3945	93957	899803	2	66476	601310
15 95	9.3943	27481	298493	.0002	66650	930127
94	9.3940	60830	368366	2	66825	473149
93	9.3937	94004	895217	2	67000	230776
92	9.3935	27004	664441	2	67175	203414
91	9.3932	59829	461027	2	67350	391468
15 90	9.3929	92479	069559	.0002	67525	795347
89	9.3927	24953	274212	2	67701	415456
88	9.3924	57251	858756	2	67877	252206
87	9.3921	89374	606550	2	68053	306004
86	9.3919	21321	300546	2	68229	577263
15 85	9.3916	53091	723283	.0002	68406	066396
84	9.3913	84685	656887	2	68582	773812
83	9.3911	16102	883075	2	68759	699929
82	9.3908	47343	183146	2	68936	845159
81	9.3905	78406	337987	2	69114	209920
15 80	9.3903	09292	128067	.0002	69291	794628
79	9.3900	40000	333439	2	69469	599703
78	9.3897	70530	733736	2	69647	625561
77	9.3895	00883	108175	2	69825	872625
76	9.3892	31057	235550	2	70004	341315
15 75	9.3889	61052	894235	.0002	70183	032055
74	9.3886	90869	862180	2	70361	945266
73	9.3884	20507	916914	2	70541	081374
72	9.3881	49966	835540	2	70720	440806
71	9.3878	79246	394734	2	70900	023986
15 70	9.3876	08346	370748	.0002	71079	831344
69	9.3873	37266	539404	2	71259	863307
68	9.3870	66006	676097	2	71440	120308
67	9.3867	94566	555789	2	71620	602774
66	9.3865	22945	953015	2	71801	311141
15 65	9.3862	51144	641874	.0002	71982	245841
64	9.3859	79162	396033	2	72163	407306
63	9.3857	06998	988727	2	72344	795976
62	9.3854	34654	192751	2	72526	412285
61	9.3851	62127	780466	2	72708	256670
15 60	9.3848	89419	523796	.0002	72890	329572

## Log Sines

c	log. sin.			$\Delta^1$		
15 60	9.3848	89419	523796	.0002	72890	329572
59	9.3846	16529	194224	2	73072	631430
58	9.3843	43456	562794	2	73255	162685
57	9.3840	70201	400109	2	73437	923780
56	9.3837	96763	476329	2	73620	915157
15 55	9.3835	23142	561172	.0002	73804	137262
54	9.3832	49338	423910	2	73987	590540
53	9.3829	75350	833370	2	74171	275438
52	9.3827	01179	557932	2	74355	192405
51	9.3824	26824	365527	2	74539	341888
15 50	9.3821	52285	023639	.0002	74723	724339
49	9.3818	77561	299300	2	74908	340209
48	9.3816	02652	959091	2	75093	189952
47	9.3813	27559	769139	2	75278	274018
46	9.3810	52281	495121	2	75463	592866
15 45	9.3807	76817	902255	.0002	75649	146951
44	9.3805	01168	755304	2	75834	936730
43	9.3802	25333	818574	2	76020	962660
42	9.3799	49312	855914	2	76207	225204
41	9.3796	73105	630710	2	76393	724821
15 40	9.3793	96711	905889	.0002	76580	461973
39	9.3791	20131	443916	2	76767	437124
38	9.3788	43364	006792	2	76954	650739
37	9.3785	66409	356053	2	77142	103281
36	9.3782	89267	252772	2	77329	795220
15 35	9.3780	11937	457552	.0002	77517	727024
34	9.3777	34419	730528	2	77705	899160
33	9.3774	56713	831368	2	77894	312101
32	9.3771	78819	519267	2	78082	966318
31	9.3769	00736	552949	2	78271	862284
15 30	9.3766	22464	690665	.0002	78461	000473
29	9.3763	44003	690192	2	78650	381362
28	9.3760	65353	308830	2	78840	005425
27	9.3757	86513	303405	2	79029	873143
26	9.3755	07483	430262	2	79219	984994
15 25	9.3752	28263	445268	.0002	79410	341459
24	9.3749	48853	103809	2	79600	943018
23	9.3746	69252	160791	2	79791	790157
22	9.3743	89460	370634	2	79982	883359
21	9.3741	09477	487275	2	80174	223108
15 20	9.3738	29303	264167	.0002	80365	809895

## Log Sines

c	log. sin.			$\Delta^1$		
15 20	9.3738	29303	264167	.0002	80365	809895
19	9.3735	48937	454272	2	80557	644204
18	9.3732	68379	810068	2	80749	726526
17	9.3729	87630	083542	2	80942	057352
16	9.3727	06688	026190	2	81134	637176
15 15	9.3724	25553	389014	.0002	81327	466487
14	9.3721	44225	922527	2	81520	545782
13	9.3718	62705	376745	2	81713	875559
12	9.3715	80991	501186	2	81907	456313
11	9.3712	99084	044873	2	82101	288541
15 10	9.3710	16982	756332	.0002	82295	372747
09	9.3707	34687	383585	2	82489	709429
08	9.3704	52197	674156	2	82684	299091
07	9.3701	69513	375065	2	82879	142236
06	9.3698	86634	232829	2	83074	239371
15 05	9.3696	03559	993458	.0002	83269	591002
04	9.3693	20290	402456	2	83465	197634
03	9.3690	36825	204822	2	83661	059782
02	9.3687	53164	145040	2	83857	177950
01	9.3684	69306	967090	2	84053	552656
15 00	9.3681	85253	414434	.0002	84250	184410
14 99	9.3679	01003	230024	2	84447	073728
98	9.3676	16556	156296	2	84644	221125
97	9.3673	31911	935171	2	84841	627120
96	9.3670	47070	308051	2	85039	292230
14 95	9.3667	62031	015821	.0002	85237	216977
94	9.3664	76793	798844	2	85435	401883
93	9.3661	91358	396961	2	85633	847469
92	9.3659	05724	549492	2	85832	554261
91	9.3656	19891	995231	2	86031	522784
14 90	9.3653	33860	472447	.0002	86230	753567
89	9.3650	47629	718880	2	86430	247137
88	9.3647	61199	471743	2	86630	004025
87	9.3644	74569	467718	2	86830	024761
86	9.3641	87739	442957	2	87030	309880
14 85	9.3639	00709	133077	.0002	87230	859917
84	9.3636	13478	273160	2	87431	675404
83	9.3633	26046	597756	2	87632	756883
82	9.3630	38413	840873	2	87834	104889
81	9.3627	50579	735984	2	88035	719966
14 80	9.3624	62544	016018	.0002	88237	602651

## Log Sines

c	log. sin.			$\Delta^1$		
14 80	9.3624	62544	016018	.0002	88237	602651
79	9.3621	74306	413367	2	88439	753491
78	9.3618	85866	659876	2	88642	173030
77	9.3615	97224	486846	2	88844	861812
76	9.3613	08379	625034	2	89047	820386
14 75	9.3610	19331	804648	.0002	89251	049302
74	9.3607	30080	755346	2	89454	549110
73	9.3604	40626	206236	2	89658	320360
72	9.3601	50967	885876	2	89862	363608
71	9.3598	61105	522268	2	90066	679408
14 70	9.3595	71038	842860	.0002	90271	268318
69	9.3592	80767	574542	2	90476	130893
68	9.3589	90291	443649	2	90681	267695
67	9.3586	99610	175954	2	90886	679286
66	9.3584	08723	496668	2	91092	366225
14 65	9.3581	17631	130443	.0002	91298	329080
64	9.3578	26332	801363	2	91504	568416
63	9.3575	34828	232947	2	91711	084797
62	9.3572	43117	148150	2	91917	878796
61	9.3569	51199	269354	2	92124	950981
14 60	9.3566	59074	318373	.0002	92332	301925
59	9.3563	66742	016448	2	92539	932202
58	9.3560	74202	084246	2	92747	842385
57	9.3557	81454	241861	2	92956	033052
56	9.3554	88498	208809	2	93164	504782
14 55	9.3551	95333	704027	.0002	93373	258153
54	9.3549	01960	445874	2	93582	293749
53	9.3546	08378	152125	2	93791	612151
52	9.3543	14586	539974	2	94001	213943
51	9.3540	20585	326031	2	94211	099714
14 50	9.3537	26374	226317	.0002	94421	270051
49	9.3534	31952	956266	2	94631	725541
48	9.3531	37321	230725	2	94842	466777
47	9.3528	42478	763948	2	95053	494354
46	9.3525	47425	269594	2	95264	808862
14 45	9.3522	52160	460732	.0002	95476	410901
44	9.3519	56684	049831	2	95688	301066
43	9.3516	60995	748765	2	95900	479958
42	9.3513	65095	268807	2	96112	948176
41	9.3510	68982	320631	2	96325	706326
14 40	9.3507	72656	614305	.0002	96538	755009

## Log Sines

c	log. sin.			$\Delta^1$		
14 40	9.3507	72656	614305	.0002	96538	755009
39	9.3504	76117	859296	2	96752	094834
38	9.3501	79365	764462	2	96965	726405
37	9.3498	82400	038057	2	97179	650336
36	9.3495	85220	387721	2	97393	867235
14 35	9.3492	87826	520486	.0002	97608	377716
34	9.3489	90218	142770	2	97823	182392
33	9.3486	92394	960378	2	98038	281882
32	9.3483	94356	678496	2	98253	676802
31	9.3480	96103	001694	2	98469	367771
14 30	9.3477	97633	633923	.0002	98685	355414
29	9.3474	98948	278509	2	98901	640350
28	9.3472	00046	638159	2	99118	223206
27	9.3469	00928	414953	2	99335	104609
26	9.3466	01593	310344	2	99552	285186
14 25	9.3463	02041	025158	.0002	99769	765569
24	9.3460	02271	259589	2	99987	546389
23	9.3457	02283	713200	3	00205	628279
22	9.3454	02078	084921	3	00424	011877
21	9.3451	01654	073044	3	00642	697816
14 20	9.3448	01011	375228	.0003	00861	686741
19	9.3445	00149	688487	3	01080	979287
18	9.3441	99068	709200	3	01300	576101
17	9.3438	97768	133099	3	01520	477826
16	9.3435	96247	655273	3	01740	685108
14 15	9.3432	94506	970165	.0003	01961	198595
14	9.3429	92545	771570	3	02182	018939
13	9.3426	90363	752631	3	02403	146789
12	9.3423	87960	605842	3	02624	582802
11	9.3420	85336	023040	3	02846	327630
14 10	9.3417	82489	695410	.0003	03068	381933
09	9.3414	79421	313477	3	03290	746370
08	9.3411	76130	567107	3	03513	421601
07	9.3408	72617	145506	3	03736	408290
06	9.3405	68880	737216	3	03959	707101
14 05	9.3402	64921	030115	.0003	04183	318703
04	9.3399	60737	711412	3	04407	243763
03	9.3396	56330	467649	3	04631	482951
02	9.3393	51698	984698	3	04856	036940
01	9.3390	46842	947758	3	05080	906407
14 00	9.3387	41762	041351	.0003	05306	092025

## Log Sines

c	log. sin.			$\Delta^1$		
14 00	9.3387	41762	041351	.0003	05306	092025
13 99	9.3384	36455	949326	3	05531	594474
98	9.3381	30924	354852	3	05757	414434
97	9.3378	25166	940418	3	05983	552587
96	9.3375	19183	387831	3	06210	009617
13 95	9.3372	12973	378214	.0003	06436	786212
94	9.3369	06536	592002	3	06663	883057
93	9.3365	99872	708945	3	06891	300845
92	9.3362	92981	408100	3	07119	040266
91	9.3359	85862	367834	3	07347	102015
13 90	9.3356	78515	265819	.0003	07575	486789
89	9.3353	70939	779030	3	07804	195284
88	9.3350	63135	583746	3	08033	228201
87	9.3347	55102	355545	3	08262	586243
86	9.3344	46839	769302	3	08492	270113
13 85	9.3341	38347	499189	.0003	08722	280518
84	9.3338	29625	218671	3	08952	618165
83	9.3335	20672	600506	3	09183	283765
82	9.3332	11489	316741	3	09414	278030
81	9.3329	02075	038711	3	09645	601676
13 80	9.3325	92429	437035	.0003	09877	255417
79	9.3322	82552	181618	3	10109	239973
78	9.3319	72442	941645	3	10341	556065
77	9.3316	62101	385580	3	10574	204414
76	9.3313	51527	181166	3	10807	185745
13 75	9.3310	40719	995421	.0003	11040	500788
74	9.3307	29679	494633	3	11274	150268
73	9.3304	18405	344365	3	11508	134918
72	9.3301	06897	209447	3	11742	455472
71	9.3297	95154	753975	3	11977	112663
13 70	9.3294	83177	641312	.0003	12212	107233
69	9.3291	70965	534079	3	12447	439916
68	9.3288	58518	094163	3	12683	111458
67	9.3285	45834	982705	3	12919	122602
66	9.3282	32915	860103	3	13155	474095
13 65	9.3279	19760	386008	.0003	13392	166682
64	9.3276	06368	219326	3	13629	201119
63	9.3272	92739	018207	3	13866	578154
62	9.3269	78872	440053	3	14104	298546
61	9.3266	64768	141507	3	14342	363048
13 60	9.3263	50425	778459	.0003	14580	772424



## Log Sines

c	log. sin.			$\Delta^1$		
13 60	9.3263	50425	778459	.0003	14580	772424
59	9.3260	35845	006035	3	14819	527433
58	9.3257	21025	478602	3	15058	628838
57	9.3254	05966	849764	3	15298	077409
56	9.3250	90668	772355	3	15537	873911
13 55	9.3247	75130	898444	.0003	15778	019117
54	9.3244	59352	879327	3	16018	513797
53	9.3241	43334	365530	3	16259	358731
52	9.3238	27075	006799	3	16500	554692
51	9.3235	10574	452107	3	16742	102463
13 50	9.3231	93832	349644	.0003	16984	002825
49	9.3228	76848	346819	3	17226	256563
48	9.3225	59622	090256	3	17468	864463
47	9.3222	42153	225793	3	17711	827314
46	9.3219	24441	398479	3	17955	145910
13 45	9.3216	06486	252569	.0003	18198	821043
44	9.3212	88287	431526	3	18442	853509
43	9.3209	69844	578017	3	18687	244107
42	9.3206	51157	333910	3	18931	993639
41	9.3203	32225	340271	3	19177	102907
13 40	9.3200	13048	237364	.0003	19422	572718
39	9.3196	93625	664646	3	19668	403880
38	9.3193	73957	260766	3	19914	597203
37	9.3190	54042	663563	3	20161	153501
36	9.3187	33881	510062	3	20408	073588
13 35	9.3184	13473	436474	.0003	20655	358283
34	9.3180	92818	078191	3	20903	008407
33	9.3177	71915	069784	3	21151	024783
32	9.3174	50764	045001	3	21399	408234
31	9.3171	29364	636767	3	21648	159590
13 30	9.3168	07716	477177	.0003	21897	279680
29	9.3164	85819	197497	3	22146	769339
28	9.3161	63672	428158	3	22396	629400
27	9.3158	41275	798758	3	22646	860702
26	9.3155	18628	938056	3	22897	464085
13 25	9.3151	95731	473971	.0003	23148	440392
24	9.3148	72583	033579	3	23399	790468
23	9.3145	49183	243111	3	23651	515161
22	9.3142	25531	727950	3	23903	615324
21	9.3139	01628	112626	3	24156	091806
13 20	9.3135	77472	020820	.0003	24408	945467

## Log Sines

c	log. sin.			$\Delta^1$		
13 20	9.3135	77472	020820	.0003	24408	945467
19	9.3132	53063	075353	3	24662	177161
18	9.3129	28400	898192	3	24915	787753
17	9.3126	03485	110439	3	25169	778104
16	9.3122	78315	332335	3	25424	149081
13 15	9.3119	52891	183254	.0003	25678	901554
14	9.3116	27212	281700	3	25934	036391
13	9.3113	01278	245309	3	26189	554470
12	9.3109	75088	690839	3	26445	456666
11	9.3106	48643	234173	3	26701	743858
13 10	9.3103	21941	490315	.0003	26958	416929
09	9.3099	94983	073386	3	27215	476765
08	9.3096	67767	596621	3	27472	924250
07	9.3093	40294	672371	3	27730	760278
06	9.3090	12563	912093	3	27988	985739
13 05	9.3086	84574	926354	.0003	28247	601532
04	9.3083	56327	324822	3	28506	608553
03	9.3080	27820	716269	3	28766	007704
02	9.3076	99054	708565	3	29025	799888
01	9.3073	70028	908677	3	29285	986014
13 00	9.3070	40742	922663	.0003	29546	566990
12 99	9.3067	11196	355673	3	29807	543729
98	9.3063	81388	811944	3	30068	917145
97	9.3060	51319	894799	3	30330	688158
96	9.3057	20989	206641	3	30592	857687
12 95	9.3053	90396	348954	.0003	30855	426657
94	9.3050	59540	922297	3	31118	395994
93	9.3047	28422	526303	3	31381	766627
92	9.3043	97040	759676	3	31645	539490
91	9.3040	65395	220186	3	31909	715516
12 90	9.3037	33485	504670	.0003	32174	295645
89	9.3034	01311	209025	3	32439	280817
88	9.3030	68871	928208	3	32704	671975
87	9.3027	36167	256233	3	32970	470068
86	9.3024	03196	786165	3	33236	676044
12 85	9.3020	69960	110121	.0003	33503	290857
84	9.3017	36456	819264	3	33770	315462
83	9.3014	02686	503802	3	34037	750819
82	9.3010	68648	752983	3	34305	597888
81	9.3007	34343	155095	3	34573	857634
12 80	9.3003	99769	297461	.0003	34842	531025

## Log Sines

c	log. sin.			$\Delta^1$		
12 80	9.3003	99769	297461	.0003	34842	531025
79	9.3000	64926	766436	3	35111	619033
78	9.2997	29815	147403	3	35381	122630
77	9.2993	94434	024773	3	35651	042794
76	9.2990	58782	981979	3	35921	380504
12 75	9.2987	22861	601475	.0003	36192	136743
74	9.2983	86669	464732	3	36463	312499
73	9.2980	50206	152233	3	36734	908759
72	9.2977	13471	243474	3	37006	926516
71	9.2973	76464	316958	3	37279	366766
12 70	9.2970	39184	950192	.0003	37552	230506
69	9.2967	01632	719686	3	37825	518740
68	9.2963	63807	200946	3	38099	232470
67	9.2960	25707	968476	3	38373	372706
66	9.2956	87334	595770	3	38647	940460
12 65	9.2953	48686	655310	.0003	38922	936744
64	9.2950	09763	718566	3	39198	362578
63	9.2946	70565	355988	3	39474	218980
62	9.2943	31091	137008	3	39750	506978
61	9.2939	91340	630030	3	40027	227595
12 60	9.2936	51313	402435	.0003	40304	381865
59	9.2933	11009	020570	3	40581	970821
58	9.2929	70427	049749	3	40859	995498
57	9.2926	29567	054251	3	41138	456940
56	9.2922	88428	597311	3	41417	356189
12 55	9.2919	47011	241122	.0003	41696	694291
54	9.2916	05314	546831	3	41976	472299
53	9.2912	63338	074532	3	42256	691264
52	9.2909	21081	383268	3	42537	352245
51	9.2905	78544	031023	3	42818	456303
12 50	9.2902	35725	574720	.0003	43100	004501
49	9.2898	92625	570219	3	43381	997906
48	9.2895	49243	572313	3	43664	437588
47	9.2892	05579	134725	3	43947	324625
46	9.2888	61631	810100	3	44230	660091
12 45	9.2885	17401	150009	.0003	44514	445068
44	9.2881	72886	704941	3	44798	680641
43	9.2878	28088	024300	3	45083	367898
42	9.2874	83004	656402	3	45368	507930
41	9.2871	37636	148472	3	45654	101835
12 40	9.2867	91982	046637	.0003	45940	150706

## Log Sines

c	log. sin.			$\Delta^1$		
12 40	9.2867	91982	046637	.0003	45940	150706
39	9.2864	46041	895931	3	46226	655652
38	9.2860	99815	240279	3	46513	617773
37	9.2857	53301	622506	3	46801	038181
36	9.2854	06500	584325	3	47088	917990
12 35	9.2850	59411	666335	.0003	47377	258314
34	9.2847	12034	408021	3	47666	060275
33	9.2843	64368	347746	3	47955	324995
32	9.2840	16413	022751	3	48245	053604
31	9.2836	68167	969147	3	48535	247232
12 30	9.2833	19632	721915	.0003	48825	907012
29	9.2829	70806	814903	3	49117	034085
28	9.2826	21689	780818	3	49408	629592
27	9.2822	72281	151226	3	49700	694679
26	9.2819	22580	456547	3	49993	230496
12 25	9.2815	72587	226051	.0003	50286	238197
24	9.2812	22300	987854	3	50579	718937
23	9.2808	71721	268917	3	50873	673879
22	9.2805	20847	595038	3	51168	104188
21	9.2801	69679	490850	3	51463	011031
12 20	9.2798	18216	479819	.0003	51758	395582
19	9.2794	66458	084237	3	52054	259015
18	9.2791	14403	825222	3	52350	602513
17	9.2787	62053	222709	3	52647	427258
16	9.2784	09405	795451	3	52944	734439
12 15	9.2780	56461	061012	.0003	53242	525247
14	9.2777	03218	535765	3	53540	800879
13	9.2773	49677	734886	3	53839	562533
12	9.2769	95838	172353	3	54138	811414
11	9.2766	41699	360939	3	54438	548730
12 10	9.2762	87260	812209	.0003	54738	775690
09	9.2759	32522	036519	3	55039	493513
08	9.2755	77482	543006	3	55340	703417
07	9.2752	22141	839589	3	55642	406625
06	9.2748	66499	432964	3	55944	604367
12 05	9.2745	10554	828597	.0003	56247	297873
04	9.2741	54307	530724	3	56550	488379
03	9.2737	97757	042345	3	56854	177125
02	9.2734	40902	865220	3	57158	365358
01	9.2730	83744	499862	3	57463	054322
12 00	9.2727	26281	445540	.0003	57768	245272

## Log Sines

c	log. sin.			$\Delta^1$		
12 00	9.2727	26281	445540	.0003	57768	245272
11 99	9.2723	68513	200268	3	58073	939465
98	9.2720	10439	260803	3	58380	138161
97	9.2716	52059	122642	3	58686	842624
96	9.2712	93372	280018	3	58994	054126
11 95	9.2709	34378	225892	.0003	59301	773939
94	9.2705	75076	451953	3	59610	003340
93	9.2702	15466	448613	3	59918	743612
92	9.2698	55547	705001	3	60227	996043
91	9.2694	95319	708958	3	60537	761921
11 90	9.2691	34781	947037	.0003	60848	042543
89	9.2687	73933	904494	3	61158	839207
88	9.2684	12775	065287	3	61470	153219
87	9.2680	51304	912068	3	61781	985885
86	9.2676	89522	926183	3	62094	338518
11 85	9.2673	27428	587665	.0003	62407	212437
84	9.2669	65021	375228	3	62720	608961
83	9.2666	02300	766267	3	63034	529417
82	9.2662	39266	236850	3	63348	975137
81	9.2658	75917	261713	3	63663	947453
11 80	9.2655	12253	314260	.0003	63979	447707
79	9.2651	48273	866553	3	64295	477242
78	9.2647	83978	389311	3	64612	037406
77	9.2644	19366	351905	3	64929	129555
76	9.2640	54437	222350	3	65246	755043
11 75	9.2636	89190	467307	.0003	65564	915235
74	9.2633	23625	552072	3	65883	611497
73	9.2629	57741	940575	3	66202	845202
72	9.2625	91539	095373	3	66522	617725
71	9.2622	25016	477648	3	66842	930447
11 70	9.2618	58173	547201	.0003	67163	784756
69	9.2614	91009	762445	3	67485	182040
68	9.2611	23524	580405	3	67807	123696
67	9.2607	55717	456709	3	68129	611123
66	9.2603	87587	845586	3	68452	645728
11 65	9.2600	19135	199858	.0003	68776	228919
64	9.2596	50358	970939	3	69100	362111
63	9.2592	81258	608828	3	69425	046723
62	9.2589	11833	562105	3	69750	284180
61	9.2585	42083	277925	3	70076	075913
11 60	9.2581	72007	202012	.0003	70402	423352

## Log Sines

c	log. sin.			$\Delta^1$		
11 60	9.2581	72007	202012	.0003	70402	423352
59	9.2578	01604	778660	3	70729	327940
58	9.2574	30875	450720	3	71056	791121
57	9.2570	59818	659599	3	71384	814340
56	9.2566	88433	845259	3	71713	399057
11 55	9.2563	16720	446202	.0003	72042	546727
54	9.2559	44677	899475	3	72372	258816
53	9.2555	72305	640659	3	72702	536793
52	9.2551	99603	103866	3	73033	382132
51	9.2548	26569	721734	3	73364	796314
11 50	9.2544	53204	925420	.0003	73696	780821
49	9.2540	79508	144599	3	74029	337146
48	9.2537	05478	807453	3	74362	466783
47	9.2533	31116	340670	3	74696	171230
46	9.2529	56420	169440	3	75030	451997
11 45	9.2525	81389	717443	.0003	75365	310591
44	9.2522	06024	406852	3	75700	748530
43	9.2518	30323	658322	3	76036	767334
42	9.2514	54286	890988	3	76373	368532
41	9.2510	77913	522456	3	76710	553653
11 40	9.2507	01202	968803	.0003	77048	324238
39	9.2503	24154	644565	3	77386	681826
38	9.2499	46767	962739	3	77725	627969
37	9.2495	69042	334770	3	78065	164218
36	9.2491	90977	170552	3	78405	292134
11 35	9.2488	12571	878418	.0003	78746	013280
34	9.2484	33825	865138	3	79087	329227
33	9.2480	54738	535911	3	79429	241553
32	9.2476	75309	294358	3	79771	751835
31	9.2472	95537	542523	3	80114	861663
11 30	9.2469	15422	680860	.0003	80458	572629
29	9.2465	34964	108231	3	80802	886331
28	9.2461	54161	221900	3	81147	804373
27	9.2457	73013	417527	3	81493	328364
26	9.2453	91520	089163	3	81839	459920
11 25	9.2450	09680	629243	.0003	82186	200662
24	9.2446	27494	428581	3	82533	552216
23	9.2442	44960	876365	3	82881	516216
22	9.2438	62079	360149	3	83230	094299
21	9.2434	78849	265850	3	83579	288110
11 20	9.2430	95269	977740	.0003	83929	099299

## Log Sines

c	log. sin.			$\Delta^1$		
11 20	9.2430	95269	977740	.0003	83929	099299
19	9.2427	11340	878441	3	84279	529522
18	9.2423	27061	348919	3	84630	580441
17	9.2419	42430	768478	3	84982	253725
16	9.2415	57448	514753	3	85334	551046
11 15	9.2411	72113	963707	.0003	85687	474085
14	9.2407	86426	489622	3	86041	024527
13	9.2404	00385	465095	3	86395	204067
12	9.2400	13990	261028	3	86750	014399
11	9.2396	27240	246629	3	87105	457230
11 10	9.2392	40134	789399	.0003	87461	534269
09	9.2388	52673	255130	3	87818	247234
08	9.2384	64855	007896	3	88175	597845
07	9.2380	76679	410051	3	88533	587835
06	9.2376	88145	822216	3	88892	218936
11 05	9.2372	99253	603280	.0003	89251	492890
04	9.2369	10002	110390	3	89611	411446
03	9.2365	20390	698944	3	89971	976357
02	9.2361	30418	722587	3	90333	189385
01	9.2357	40085	533202	3	90695	052295
11 00	9.2353	49390	480907	.0003	91057	566861
10 99	9.2349	58332	914046	3	91420	734865
98	9.2345	66912	179181	3	91784	558089
97	9.2341	75127	621092	3	92149	038329
96	9.2337	82978	582763	3	92514	177385
10 95	9.2333	90464	405378	.0003	92879	977060
94	9.2329	97584	428318	3	93246	439169
93	9.2326	04337	989149	3	93613	565529
92	9.2322	10724	423620	3	93981	357969
91	9.2318	16743	065651	3	94349	818318
10 90	9.2314	22393	247333	.0003	94718	948417
89	9.2310	27674	298916	3	95088	750114
88	9.2306	32585	548802	3	95459	225257
87	9.2302	37126	323545	3	95830	375711
86	9.2298	41295	947834	3	96202	203338
10 85	9.2294	45093	744496	.0003	96574	710014
84	9.2290	48519	034482	3	96947	897619
83	9.2286	51571	136863	3	97321	768039
82	9.2282	54249	368824	3	97696	323170
81	9.2278	56553	045654	3	98071	564912
10 80	9.2274	58481	480742	.0003	98447	495173

## Log Sines

c	log. sin.			$\Delta^1$
10 80	9.2274	58481	480742	.0003 98447 495173
79	9.2270	60033	985569	3 98824 115870
78	9.2266	61209	869699	3 99201 428924
77	9.2262	62008	440775	3 99579 436264
76	9.2258	62429	004511	3 99958 139829
10 75	9.2254	62470	864682	.0004 00337 541562
74	9.2250	62133	323120	4 00717 643414
73	9.2246	61415	679706	4 01098 447342
72	9.2242	60317	232364	4 01479 955315
71	9.2238	58837	277049	4 01862 169305
10 70	9.2234	56975	107744	.0004 02245 091290
69	9.2230	54730	016454	4 02628 723262
68	9.2226	52101	293192	4 03013 067214
67	9.2222	49088	225978	4 03398 125150
66	9.2218	45690	100828	4 03783 899078
10 65	9.2214	41906	201750	.0004 04170 391020
64	9.2210	37735	810730	4 04557 602998
63	9.2206	33178	207732	4 04945 537047
62	9.2202	28232	670685	4 05334 195207
61	9.2198	22898	475478	4 05723 579528
10 60	9.2194	17174	895950	.0004 06113 692065
59	9.2190	11061	203885	4 06504 534881
58	9.2186	04556	669004	4 06896 110051
57	9.2181	97660	558953	4 07288 419652
56	9.2177	90372	139301	4 07681 465772
10 55	9.2173	82690	673529	.0004 08075 250508
54	9.2169	74615	423021	4 08469 775962
53	9.2165	66145	647059	4 08865 044245
52	9.2161	57280	602814	4 09261 057479
51	9.2157	48019	545335	4 09657 817789
10 50	9.2153	38361	727546	.0004 10055 327312
49	9.2149	28306	400234	4 10453 588191
48	9.2145	17852	812043	4 10852 602578
47	9.2141	07000	209465	4 11252 372635
46	9.2136	95747	836830	4 11652 900528
10 45	9.2132	84094	936302	.0004 12054 188435
44	9.2128	72040	747867	4 12456 238542
43	9.2124	59584	509325	4 12859 053041
42	9.2120	46725	456284	4 13262 634134
41	9.2116	33462	822150	4 13666 984032
10 40	9.2112	19795	838118	.0004 14072 104955



## Log Sines

c	log. sin.			$\Delta^1$		
10 40	9.2112	19795	838118	.0004	14072	104955
39	9.2108	05723	733163	4	14477	999128
38	9.2103	91245	734035	4	14884	668789
37	9.2099	76361	065246	4	15292	116182
36	9.2095	61068	949064	4	15700	343561
10 35	9.2091	45368	605503	.0004	16109	353187
34	9.2087	29259	252316	4	16519	147330
33	9.2083	12740	104986	4	16929	728273
32	9.2078	95810	376713	4	17341	098301
31	9.2074	78469	278412	4	17753	259714
10 30	9.2070	60716	018698	.0004	18166	214815
29	9.2066	42549	803883	4	18579	965923
28	9.2062	23969	837960	4	18994	515359
27	9.2058	04975	322601	4	19409	865459
26	9.2053	85565	457142	4	19826	018564
10 25	9.2049	65739	438578	.0004	20242	977025
24	9.2045	45496	461553	4	20660	743204
23	9.2041	24835	718349	4	21079	319470
22	9.2037	03756	398879	4	21498	708202
21	9.2032	82257	690677	4	21918	911791
10 20	9.2028	60338	778886	.0004	22339	932632
19	9.2024	37998	846254	4	22761	773134
18	9.2020	15237	073120	4	23184	435714
17	9.2015	92052	637406	4	23607	922796
16	9.2011	68444	714610	4	24032	236819
10 15	9.2007	44412	477791	.0004	24457	380227
14	9.2003	19955	097564	4	24883	355475
13	9.1998	95071	742089	4	25310	165028
12	9.1994	69761	577061	4	25737	811361
11	9.1990	44023	765700	4	26166	296959
10 10	9.1986	17857	468741	.0004	26595	624314
09	9.1981	91261	844427	4	27025	795933
08	9.1977	64236	048494	4	27456	814327
07	9.1973	36779	234167	4	27888	682023
06	9.1969	08890	552144	4	28321	401553
10 05	9.1964	80569	150591	.0004	28754	975463
04	9.1960	51814	175128	4	29189	406305
03	9.1956	22624	768823	4	29624	696646
02	9.1951	93000	072177	4	30060	849058
01	9.1947	62939	223119	4	30497	866130
10 00	9.1943	32441	356989	.0004	30935	750454

## Log Sines

c	log. sin.			$\Delta^1$		
10 00	9.1943	32441	356989	.0004	30935	750454
9 99	9.1939	01505	606535	4	31374	504637
98	9.1934	70131	101898	4	31814	131295
97	9.1930	38316	970603	4	32254	633055
96	9.1926	06062	337548	4	32696	012554
9 95	9.1921	73366	324994	.0004	33138	272441
94	9.1917	40228	052553	4	33581	415374
93	9.1913	06646	637179	4	34025	444021
92	9.1908	72621	193158	4	34470	361064
91	9.1904	38150	832094	4	34916	169193
9 90	9.1900	03234	662901	.0004	35362	871109
89	9.1895	67871	791792	4	35810	469526
88	9.1891	32061	322266	4	36258	967168
87	9.1886	95802	355098	4	36708	366768
86	9.1882	59093	988330	4	37158	671072
9 85	9.1878	21935	317258	.0004	37609	882840
84	9.1873	84325	434418	4	38062	004837
83	9.1869	46263	429581	4	38515	039842
82	9.1865	07748	389739	4	38968	990649
81	9.1860	68779	399090	4	39423	860059
9 80	9.1856	29355	539031	.0004	39879	650883
79	9.1851	89475	888148	4	40336	365949
78	9.1847	49139	522199	4	40794	008093
77	9.1843	08345	514106	4	41252	580163
76	9.1838	67092	933943	4	41712	085020
9 75	9.1834	25380	848923	.0004	42172	525534
74	9.1829	83208	323389	4	42633	904590
73	9.1825	40574	418799	4	43096	225082
72	9.1820	97478	193717	4	43559	489919
71	9.1816	53918	703798	4	44023	702019
9 70	9.1812	09895	001779	.0004	44488	864313
69	9.1807	65406	137466	4	44954	979747
68	9.1803	20451	157719	4	45422	051273
67	9.1798	75029	106446	4	45890	081862
66	9.1794	29139	024584	4	46359	074492
9 65	9.1789	82779	950092	.0004	46829	032157
64	9.1785	35950	917935	4	47299	957860
63	9.1780	88650	960075	4	47771	854621
62	9.1776	40879	105454	4	48244	725467
61	9.1771	92634	379987	4	48718	573444
9 60	9.1767	43915	806543	.0004	49193	401604

## Log Sines

c	log. sin.			$\Delta^1$		
9 60	9.1767	43915	806543	.0004	49193	401604
59	9.1762	94722	404939	4	49669	213017
58	9.1758	45053	191922	4	50146	010763
57	9.1753	94907	181159	4	50623	797936
56	9.1749	44283	383223	4	51102	577643
9 55	9.1744	93180	805580	.0004	51582	353003
54	9.1740	41598	452577	4	52063	127149
53	9.1735	89535	325428	4	52544	903228
52	9.1731	36990	422200	4	53027	684397
51	9.1726	83962	737803	4	53511	473829
9 50	9.1722	30451	263974	.0004	53996	274713
49	9.1717	76454	989261	4	54482	090243
48	9.1713	21972	899018	4	54968	923636
47	9.1708	67003	975382	4	55456	778116
46	9.1704	11547	197266	4	55945	656924
9 45	9.1699	55601	540342	.0004	56435	563314
44	9.1694	99165	977028	4	56926	500552
43	9.1690	42239	476476	4	57418	471921
42	9.1685	84821	004555	4	57911	480715
41	9.1681	26909	523840	4	58405	530244
9 40	9.1676	68503	993596	.0004	58900	623832
39	9.1672	09603	369764	4	59396	764815
38	9.1667	50206	604949	4	59893	956547
37	9.1662	90312	648402	4	60392	202391
36	9.1658	29920	446011	4	60891	505730
9 35	9.1653	69028	940281	.0004	61391	869959
34	9.1649	07637	070322	4	61893	298487
33	9.1644	45743	771835	4	62395	794737
32	9.1639	83347	977098	4	62899	362149
31	9.1635	20448	614949	4	63404	004177
9 30	9.1630	57044	610772	.0004	63909	724289
29	9.1625	93134	886483	4	64416	525969
28	9.1621	28718	360514	4	64924	412714
27	9.1616	63793	947800	4	65433	388040
26	9.1611	98360	559760	4	65943	455472
9 25	9.1607	32417	104288	.0004	66454	618558
24	9.1602	65962	485730	4	66966	880856
23	9.1597	98995	604874	4	67480	245940
22	9.1593	31515	358934	4	67994	717400
21	9.1588	63520	641534	4	68510	298845
9 20	9.1583	95010	342689	.0004	69026	993892

## Log Sines

c	log. sin.			$\Delta^1$		
9 20	9.1583	95010	342689	.0004	69026	993892
19	9.1579	25983	348797	4	69544	806183
18	9.1574	56438	542614	4	70063	739368
17	9.1569	86374	803246	4	70583	797117
16	9.1565	15791	006129	4	71104	983116
9 15	9.1560	44686	023013	.0004	71627	301066
14	9.1555	73058	721947	4	72150	754684
13	9.1551	00907	967263	4	72675	347705
12	9.1546	28232	619558	4	73201	083877
11	9.1541	55031	535681	4	73727	966970
9 10	9.1536	81303	568711	.0004	74256	000764
09	9.1532	07047	567947	4	74785	189062
08	9.1527	32262	378885	4	75315	535677
07	9.1522	56946	843208	4	75847	044446
06	9.1517	81099	798762	4	76379	719219
9 05	9.1513	04720	079543	.0004	76913	563860
04	9.1508	27806	515683	4	77448	582258
03	9.1503	50357	933425	4	77984	778313
02	9.1498	72373	155112	4	78522	155943
01	9.1493	93850	999169	4	79060	719087
9 00	9.1489	14790	280082	.0004	79600	471696
8 99	9.1484	35189	808386	4	80141	417746
98	9.1479	55048	390640	4	80683	561221
97	9.1474	74364	829419	4	81226	906132
96	9.1469	93137	923287	4	81771	456503
8 95	9.1465	11366	466784	.0004	82317	216378
94	9.1460	29049	250406	4	82864	189815
93	9.1455	46185	060591	4	83412	380897
92	9.1450	62772	679694	4	83961	793719
91	9.1445	78810	885975	4	84512	432399
8 90	9.1440	94298	453576	.0004	85064	301071
89	9.1436	09234	152505	4	85617	403887
88	9.1431	23616	748618	4	86171	745021
87	9.1426	37445	003597	4	86727	328662
86	9.1421	50717	674935	4	87284	159020
8 85	9.1416	63433	515915	.0004	87842	240325
84	9.1411	75591	275590	4	88401	576822
83	9.1406	87189	698768	4	88962	172781
82	9.1401	98227	525987	4	89524	032487
81	9.1397	08703	493500	4	90087	160246
8 80	9.1392	18616	333254	.0004	90651	560384

## Log Sines

c	log. sin.			$\Delta^1$		
8 80	9.1392	18616	333254	.0004	90651	560384
79	9.1387	27964	772870	4	91217	237247
78	9.1382	36747	535623	4	91784	195197
77	9.1377	44963	340426	4	92352	438622
76	9.1372	52610	901804	4	92921	971926
8 75	9.1367	59688	929878	.0004	93492	799534
74	9.1362	66196	130344	4	94064	925891
73	9.1357	72131	204453	4	94638	355463
72	9.1352	77492	848990	4	95213	092737
71	9.1347	82279	756253	4	95789	142218
8 70	9.1342	86490	614035	.0004	96366	508436
69	9.1337	90124	105599	4	96945	195939
68	9.1332	93178	909660	4	97525	209293
67	9.1327	95653	700367	4	98106	553094
66	9.1322	97547	147273	4	98689	231950
8 65	9.1317	98857	915323	.0004	99273	250495
64	9.1312	99584	664828	4	99858	613383
63	9.1307	99726	051445	5	00445	325292
62	9.1302	99280	726153	5	01033	390917
61	9.1297	98247	335236	5	01622	814980
8 60	9.1292	96624	520256	.0005	02213	602223
59	9.1287	94410	918033	5	02805	757407
58	9.1282	91605	160626	5	03399	285320
57	9.1277	88205	875306	5	03994	190770
56	9.1272	84211	684536	5	04590	478587
8 55	9.1267	79621	205949	.0005	05188	153626
54	9.1262	74433	052323	5	05787	220762
53	9.1257	68645	831561	5	06387	684894
52	9.1252	62258	146667	5	06989	550943
51	9.1247	55268	595724	5	07592	823857
8 50	9.1242	47675	771867	.0005	08197	508603
49	9.1237	39478	263264	5	08803	610171
48	9.1232	30674	653093	5	09411	133580
47	9.1227	21263	519513	5	10020	083866
46	9.1222	11243	435647	5	10630	466095
8 45	9.1217	00612	969552	.0005	11242	285350
44	9.1211	89370	684202	5	11855	546747
43	9.1206	77515	137455	5	12470	255416
42	9.1201	65044	882039	5	13086	416522
41	9.1196	51958	465517	5	13704	035246
8 40	9.1191	38254	430271	.0005	14323	116797

## Log Sines

c	log. sin.			$\Delta^1$		
8 40	9.1191	38254	430271	.0005	14323	116797
39	9.1186	23931	313474	5	14943	666410
38	9.1181	08987	647064	5	15565	689345
37	9.1175	93421	957719	5	16189	190884
36	9.1170	77232	766835	5	16814	176336
8 35	9.1165	60418	590499	.0005	17440	651038
34	9.1160	42977	939461	5	18068	620348
33	9.1155	24909	319113	5	18698	089654
32	9.1150	06211	229459	5	19329	064368
31	9.1144	86882	165091	5	19961	549925
8 30	9.1139	66920	615166	.0005	20595	551794
29	9.1134	46325	063372	5	21231	075462
28	9.1129	25093	987910	5	21868	126449
27	9.1124	03225	861461	5	22506	710296
26	9.1118	80719	151165	5	23146	832577
8 25	9.1113	57572	318588	.0005	23788	498886
24	9.1108	33783	819702	5	24431	714853
23	9.1103	09352	104849	5	25076	486125
22	9.1097	84275	618724	5	25722	818387
21	9.1092	58552	800337	5	26370	717342
8 20	9.1087	32182	082995	.0005	27020	188730
19	9.1082	05161	894265	5	27671	238309
18	9.1076	77490	655956	5	28323	871877
17	9.1071	49166	784079	5	28978	095248
16	9.1066	20188	688831	5	29633	914275
8 15	9.1060	90554	774556	.0005	30291	334834
14	9.1055	60263	439722	5	30950	362830
13	9.1050	29313	076892	5	31611	004200
12	9.1044	97702	072692	5	32273	264908
11	9.1039	65428	807784	5	32937	150946
8 10	9.1034	32491	656838	.0005	33602	668342
09	9.1028	98888	988496	5	34269	823145
08	9.1023	64619	165351	5	34938	621441
07	9.1018	29680	543910	5	35609	069343
06	9.1012	94071	474567	5	36281	172995
8 05	9.1007	57790	301572	.0005	36954	938570
04	9.1002	20835	363002	5	37630	372275
03	9.0996	83204	990727	5	38307	480346
02	9.0991	44897	510381	5	38986	269049
01	9.0986	05911	241332	5	39666	744685
8 00	9.0980	66244	496647	.0005	40348	913581

## Log Sines

c	log. sin.			$\Delta^1$		
8 00	9.0980	66244	496647	.0005	40348	913581
7 99	9.0975	25895	583066	5	41032	782101
98	9.0969	84862	800965	5	41718	356638
97	9.0964	43144	444327	5	42405	643617
96	9.0959	00738	800710	5	43094	649499
7 95	9.0953	57644	151211	.0005	43785	380770
94	9.0948	13858	770441	5	44477	843958
93	9.0942	69380	926483	5	45172	045617
92	9.0937	24208	880866	5	45867	992337
91	9.0931	78340	888529	5	46565	690739
7 90	9.0926	31775	197790	.0005	47265	147482
89	9.0920	84510	050308	5	47966	369255
88	9.0915	36543	681053	5	48669	362781
87	9.0909	87874	318272	5	49374	134820
86	9.0904	38500	183452	5	50080	692164
7 85	9.0898	88419	491288	.0005	50789	041640
84	9.0893	37630	449648	5	51499	190111
83	9.0887	86131	259537	5	52211	144472
82	9.0882	33920	115065	5	52924	911659
81	9.0876	80995	203406	5	53640	498637
7 80	9.0871	27354	704769	.0005	54357	912412
79	9.0865	72996	792357	5	55077	160023
78	9.0860	17919	632334	5	55798	248545
77	9.0854	62121	383789	5	56521	185093
76	9.0849	05600	198696	5	57245	976813
7 75	9.0843	48354	221883	.0005	57972	630893
74	9.0837	90381	590990	5	58701	154558
73	9.0832	31680	436432	5	59431	555064
72	9.0826	72248	881368	5	60163	839714
71	9.0821	12085	041654	5	60898	015841
7 70	9.0815	51187	025813	.0005	61634	090821
69	9.0809	89552	934992	5	62372	072066
68	9.0804	27180	862926	5	63111	967027
67	9.0798	64068	895899	5	63853	783197
66	9.0793	00215	112702	5	64597	528101
7 65	9.0787	35617	584601	.0005	65343	209310
64	9.0781	70274	375291	5	66090	834434
63	9.0776	04183	540857	5	66840	411118
62	9.0770	37343	129739	5	67591	947053
61	9.0764	69751	182686	5	68345	449967
7 60	9.0759	01405	732719	.0005	69100	927629

## Log Sines

c	log. sin.			$\Delta^1$
7 60	9.0759	01405	732719	.0005 69100 927629
59	9.0753	32304	805090	5 69858 387852
58	9.0747	62446	417238	5 70617 838486
57	9.0741	91828	578752	5 71379 287423
56	9.0736	20449	291329	5 72142 742602
7 55	9.0730	48306	548727	.0005 72908 211996
54	9.0724	75398	336731	5 73675 703628
53	9.0719	01722	633103	5 74445 225559
52	9.0713	27277	407544	5 75216 785893
51	9.0707	52060	621651	5 75990 392780
7 50	9.0701	76070	228871	.0005 76766 054411
49	9.0695	99304	174460	5 77543 779023
48	9.0690	21760	395437	5 78323 574892
47	9.0684	43436	820545	5 79105 450346
46	9.0678	64331	370199	5 79889 413753
7 45	9.0672	84441	956446	.0005 80675 473523
44	9.0667	03766	482923	5 81463 638121
43	9.0661	22302	844802	5 82253 916046
42	9.0655	40048	928756	5 83046 315851
41	9.0649	57002	612905	5 83840 846133
7 40	9.0643	73161	766772	.0005 84637 515533
39	9.0637	88524	251239	5 85436 332743
38	9.0632	03087	918496	5 86237 306499
37	9.0626	16850	611997	5 87040 445584
36	9.0620	29810	166413	5 87845 758834
7 35	9.0614	41964	407579	.0005 88653 255126
34	9.0608	53311	152453	5 89462 943389
33	9.0602	63848	209064	5 90274 832603
32	9.0596	73573	376461	5 91088 931791
31	9.0590	82484	444670	5 91905 250033
7 30	9.0584	90579	194637	.0005 92723 796451
29	9.0578	97855	398186	5 93544 580223
28	9.0573	04310	817963	5 94367 610575
27	9.0567	09943	207388	5 95192 896785
26	9.0561	14750	310603	5 96020 448179
7 25	9.0555	18729	862424	.0005 96850 274140
24	9.0549	21879	588284	5 97682 384096
23	9.0543	24197	204188	5 98516 787533
22	9.0537	25680	416655	5 99353 493988
21	9.0531	26326	922667	6 00192 513050
7 20	9.0525	26134	409617	.0006 01033 854360



## Log Sines

c	log. sin.			$\Delta^1$		
7 20	9.0525	26134	409617	.0006	01033	854360
19	9.0519	25100	555257	6	01877	527616
18	9.0513	23223	027641	6	02723	542568
17	9.0507	20499	485073	6	03571	909022
16	9.0501	16927	576051	6	04422	636836
7 15	9.0495	12504	939215	.0006	05275	735925
14	9.0489	07229	203290	6	06131	216261
13	9.0483	01097	987029	6	06989	087869
12	9.0476	94108	899160	6	07849	360832
11	9.0470	86259	538328	6	08712	045290
7 10	9.0464	77547	493038	.0006	09577	151441
09	9.0458	67970	341597	6	10444	689536
08	9.0452	57525	652061	6	11314	669891
07	9.0446	46210	982170	6	12187	102873
06	9.0440	34023	879297	6	13061	998914
7 05	9.0434	20961	880383	.0006	13939	368504
04	9.0428	07022	511879	6	14819	222186
03	9.0421	92203	289693	6	15701	570575
02	9.0415	76501	719118	6	16586	424335
01	9.0409	59915	294783	6	17473	794197
7 00	9.0403	42441	500586	.0006	18363	690953
6 99	9.0397	24077	809633	6	19256	125457
98	9.0391	04821	684176	6	20151	108621
97	9.0384	84670	575555	6	21048	651425
96	9.0378	63621	924130	6	21948	764910
6 95	9.0372	41673	159220	.0006	22851	460179
94	9.0366	18821	699041	6	23756	748404
93	9.0359	95064	950637	6	24664	640815
92	9.0353	70400	309822	6	25575	148710
91	9.0347	44825	161112	6	26488	283456
6 90	9.0341	18336	877656	.0006	27404	056479
89	9.0334	90932	821177	6	28322	479275
88	9.0328	62610	341902	6	29243	563411
87	9.0322	33366	778491	6	30167	320512
86	9.0316	03199	457979	6	31093	762278
6 85	9.0309	72105	695701	.0006	32022	900477
84	9.0303	40082	795224	6	32954	746942
83	9.0297	07128	048282	6	33889	313579
82	9.0290	73238	734703	6	34826	612361
81	9.0284	38412	122342	6	35766	655335
6 80	9.0278	02645	467007	.0006	36709	454615

## Log Sines

c	log. sin.			$\Delta^1$
6 80	9.0278	02645	467007	.0006 36709 454615
79	9.0271	65936	012392	6 37655 022389
78	9.0265	28280	990003	6 38603 370916
77	9.0258	89677	619087	6 39554 512527
76	9.0252	50123	106560	6 40508 459629
6 75	9.0246	09614	646931	.0006 41465 224697
74	9.0239	68149	422234	6 42424 820286
73	9.0233	25724	601948	6 43387 259021
72	9.0226	82337	342927	6 44352 553606
71	9.0220	37984	789321	6 45320 716817
6 70	9.0213	92664	072504	.0006 46291 761511
69	9.0207	46372	310993	6 47265 700617
68	9.0200	99106	610376	6 48242 547144
67	9.0194	50864	063232	6 49222 314180
66	9.0188	01641	749052	6 50205 014889
6 65	9.0181	51436	734163	.0006 51190 662518
64	9.0175	00246	071645	6 52179 270389
63	9.0168	48066	801256	6 53170 851908
62	9.0161	94895	949348	6 54165 420561
61	9.0155	40730	528787	6 55162 989918
6 60	9.0148	85567	538869	.0006 56163 573624
59	9.0142	29403	965245	6 57167 185417
58	9.0135	72236	779828	6 58173 839112
57	9.0129	14062	940716	6 59183 548607
56	9.0122	54879	392109	6 60196 327891
6 55	9.0115	94683	064218	.0006 61212 191034
54	9.0109	33470	873184	6 62231 152192
53	9.0102	71239	720992	6 63253 225611
52	9.0096	07986	495381	6 64278 425619
51	9.0089	43708	069762	6 65306 766640
6 50	9.0082	78401	303122	.0006 66338 263177
49	9.0076	12063	039945	6 67372 929833
48	9.0069	44690	110112	6 68410 781293
47	9.0062	76279	328819	6 69451 832336
46	9.0056	06827	496483	6 70496 097833
6 45	9.0049	36331	398650	.0006 71543 592746
44	9.0042	64787	805904	6 72594 332132
43	9.0035	92193	473772	6 73648 331139
42	9.0029	18545	142633	6 74705 605012
41	9.0022	43839	537621	6 75766 169089
6 40	9.0015	68073	368532	.0006 76830 038807

## Log Sines

c	log. sin.			$\Delta^1$		
6 40	9.0015	68073	368532	.0006	76830	038807
39	9.0008	91243	329725	6	77897	229696
38	9.0002	13346	100029	6	78967	757384
37	8.9995	34378	342645	6	80041	637603
36	8.9988	54336	705042	6	81118	886174
6 35	8.9981	73217	818868	.0006	82199	519026
34	8.9974	91018	299842	6	83283	552187
33	8.9968	07734	747655	6	84371	001781
32	8.9961	23363	745874	6	85461	884043
31	8.9954	37901	861831	6	86556	215303
6 30	8.9947	51345	646528	.0006	87654	011999
29	8.9940	63691	634529	6	88755	290673
28	8.9933	74936	343856	6	89860	067971
27	8.9926	85076	275885	6	90968	360648
26	8.9919	94107	915237	6	92080	185562
6 25	8.9913	02027	729675	.0006	93195	559684
24	8.9906	08832	169991	6	94314	500090
23	8.9899	14517	669901	6	95437	023967
22	8.9892	19080	645934	6	96563	148613
21	8.9885	22517	497321	6	97692	891439
6 20	8.9878	24824	605882	.0006	98826	269962
19	8.9871	25998	335920	6	99963	301822
18	8.9864	26035	034098	7	01104	004765
17	8.9857	24931	029333	7	02248	396657
16	8.9850	22682	632676	7	03396	495476
6 15	8.9843	19286	137200	.0007	04548	319323
14	8.9836	14737	817877	7	05703	886410
13	8.9829	09033	931467	7	06863	215073
12	8.9822	02170	716394	7	08026	323767
11	8.9814	94144	392627	7	09193	231067
6 10	8.9807	84951	161560	.0007	10363	955668
09	8.9800	74587	205892	7	11538	516393
08	8.9793	63048	689499	7	12716	932185
07	8.9786	50331	757314	7	13899	222111
06	8.9779	36432	535203	7	15085	405369
6 05	8.9772	21347	129834	.0007	16275	501278
04	8.9765	05071	628556	7	17469	529291
03	8.9757	87602	099265	7	18667	508984
02	8.9750	68934	590281	7	19869	460068
01	8.9743	49065	130213	7	21075	402385
6 00	8.9736	27989	727828	.0007	22285	355904

## Log Sines

c	log. sin.			$\Delta^1$		
6 00	8.9736	27989	727828	.0007	22285	355904
5 99	8.9729	05704	371924	7	23499	340734
98	8.9721	82205	031190	7	24717	377117
97	8.9714	57487	654073	7	25939	485428
96	8.9707	31548	168645	7	27165	686181
5 95	8.9700	04382	482464	.0007	28396	000029
94	8.9692	75986	482435	7	29630	447760
93	8.9685	46356	034675	7	30869	050308
92	8.9678	15486	984367	7	32111	828744
91	8.9670	83375	155623	7	33358	804285
5 90	8.9663	50016	351338	.0007	34609	998290
89	8.9656	15406	353048	7	35865	432263
88	8.9648	79540	920785	7	37125	127855
87	8.9641	42415	792930	7	38389	106866
86	8.9634	04026	686064	7	39657	391242
5 85	8.9626	64369	294822	.0007	40930	003083
84	8.9619	23439	291739	7	42206	964635
83	8.9611	81232	327104	7	43488	298304
82	8.9604	37744	028800	7	44774	026643
81	8.9596	92970	002157	7	46064	172366
5 80	8.9589	46905	829791	.0007	47358	758340
79	8.9581	99547	071451	7	48657	807593
78	8.9574	50889	263858	7	49961	343308
77	8.9567	00927	920550	7	51269	388834
76	8.9559	49658	531716	7	52581	967682
5 75	8.9551	97076	564034	.0007	53899	103522
74	8.9544	43177	460512	7	55220	820192
73	8.9536	87956	640320	7	56547	141698
72	8.9529	31409	498622	7	57878	092212
71	8.9521	73531	406410	7	59213	696076
5 70	8.9514	14317	710334	.0007	60553	977802
69	8.9506	53763	732532	7	61898	962078
68	8.9498	91864	770454	7	63248	673761
67	8.9491	28616	096693	7	64603	137886
66	8.9483	64012	958807	7	65962	379667
5 65	8.9475	98050	579140	.0007	67326	424493
64	8.9468	30724	154647	7	68695	297936
63	8.9460	62028	856711	7	70069	025749
62	8.9452	91959	830962	7	71447	633865
61	8.9445	20512	197097	7	72831	148411
5 60	8.9437	47681	048686	.0007	74219	595690

## Log Sines

c	log. sin.			$\Delta^1$		
5 60	8.9437	47681	048686	.0007	74219	595690
59	8.9429	73461	452996	7	75613	002201
58	8.9421	97848	450795	7	77011	394631
57	8.9414	20837	056164	7	78414	799856
56	8.9406	42422	256308	7	79823	244951
5 55	8.9398	62599	011357	.0007	81236	757181
54	8.9390	81362	254176	7	82655	364011
53	8.9382	98706	890165	7	84079	093105
52	8.9375	14627	797060	7	85507	972326
51	8.9367	29119	824734	7	86942	029740
5 50	8.9359	42177	794994	.0007	88381	293619
49	8.9351	53796	501375	7	89825	792437
48	8.9343	63970	708938	7	91275	554881
47	8.9335	72695	154057	7	92730	609845
46	8.9327	79964	544212	7	94190	986437
5 45	8.9319	85773	557775	.0007	95656	713975
44	8.9311	90116	843800	7	97127	821997
43	8.9303	92989	021803	7	98604	340256
42	8.9295	94384	681547	8	00086	298727
41	8.9287	94298	382820	8	01573	727603
5 40	8.9279	92724	655217	.0008	03066	657308
39	8.9271	89657	997909	8	04565	118483
38	8.9263	85092	879426	8	06069	142004
37	8.9255	79023	737422	8	07578	758973
36	8.9247	71444	978449	8	09094	000729
5 35	8.9239	62350	977720	.0008	10614	898838
34	8.9231	51736	078882	8	12141	485112
33	8.9223	39594	593770	8	13673	791593
32	8.9215	25920	802177	8	15211	850572
31	8.9207	10708	951605	8	16755	694577
5 30	8.9198	93953	257028	.0008	18305	356387
29	8.9190	75647	900641	8	19860	869023
28	8.9182	55787	031618	8	21422	265764
27	8.9174	34364	765854	8	22989	580136
26	8.9166	11375	185718	8	24562	845922
5 25	8.9157	86812	339796	.0008	26142	097162
24	8.9149	60670	242634	8	27727	368158
23	8.9141	32942	874476	8	29318	693474
22	8.9133	03624	181002	8	30916	107936
21	8.9124	72708	073066	8	32519	646642
5 20	8.9116	40188	426424	.0008	34129	344959

## Log Sines

c	log. sin.			$\Delta^1$		
5 20	8.9116	40188	426424	.0008	34129	344959
19	8.9108	06059	081465	8	35745	238524
18	8.9099	70313	842941	8	37367	363254
17	8.9091	32946	479687	8	38995	755340
16	8.9082	93950	724347	8	40630	451255
5 15	8.9074	53320	273092	.0008	42271	487760
14	8.9066	11048	785332	8	43918	901894
13	8.9057	67129	883438	8	45572	730993
12	8.9049	21557	152445	8	47233	012680
11	8.9040	74324	139765	8	48899	784875
5 10	8.9032	25424	354890	.0008	50573	085794
09	8.9023	74851	269096	8	52252	953957
08	8.9015	22598	315139	8	53939	428182
07	8.9006	68658	886957	8	55632	547601
06	8.8998	13026	339356	8	57332	351648
5 05	8.8989	55693	987708	.0008	59038	880076
04	8.8980	96655	107632	8	60752	172947
03	8.8972	35902	934685	8	62472	270652
02	8.8963	73430	664033	8	64199	213892
01	8.8955	09231	450141	8	65933	043703
5 00	8.8946	43298	406438	.0008	67673	801445
4 99	8.8937	75624	604993	8	69421	528810
98	8.8929	06203	076183	8	71176	267829
97	8.8920	35026	808354	8	72938	060865
96	8.8911	62088	747489	8	74706	950628
4 95	8.8902	87381	796861	.0008	76482	980174
94	8.8894	10898	816687	8	78266	192903
93	8.8885	32632	623784	8	80056	632573
92	8.8876	52575	991211	8	81854	343296
91	8.8867	70721	647915	8	83659	369541
4 90	8.8858	87062	278374	.0008	85471	756144
89	8.8850	01590	522230	8	87291	548308
88	8.8841	14298	973922	8	89118	791606
87	8.8832	25180	182316	8	90953	531984
86	8.8823	34226	650332	8	92795	815768
4 85	8.8814	41430	834564	.0008	94645	689670
84	8.8805	46785	144894	8	96503	200780
83	8.8796	50281	944114	8	98368	396587
82	8.8787	51913	547527	9	00241	324970
81	8.8778	51672	222557	9	02122	034208
4 80	8.8769	49550	188349	.0009	04010	572981

## Log Sines

c	log. sin.			$\Delta^1$		
4 80	8.8769	49550	188349	.0009	04010	572981
79	8.8760	45539	615368	9	05906	990379
78	8.8751	39632	624989	9	07811	335899
77	8.8742	31821	289090	9	09723	659457
76	8.8733	22097	629633	9	11644	011390
4 75	8.8724	10453	618243	.0009	13572	442455
74	8.8714	96881	175788	9	15509	003839
73	8.8705	81372	171949	9	17453	747165
72	8.8696	63918	424784	9	19406	724493
71	8.8687	44511	700291	9	21367	988322
4 70	8.8678	23143	711969	.0009	23337	591604
69	8.8668	99806	120365	9	25315	587739
68	8.8659	74490	532626	9	27302	030584
67	8.8650	47188	502042	9	29296	974460
66	8.8641	17891	527582	9	31300	474155
4 65	8.8631	86591	053427	.0009	33312	584925
64	8.8622	53278	468502	9	35333	362507
63	8.8613	17945	105995	9	37362	863118
62	8.8603	80582	242877	9	39401	143462
61	8.8594	41181	099415	9	41448	260736
4 60	8.8584	99732	838679	.0009	43504	272637
59	8.8575	56228	566042	9	45569	237362
58	8.8566	10659	328680	9	47643	213619
57	8.8556	63016	115061	9	49726	260628
56	8.8547	13289	854433	9	51818	438132
4 55	8.8537	61471	416301	.0009	53919	806400
54	8.8528	07551	609901	9	56030	426228
53	8.8518	51521	183673	9	58150	358955
52	8.8508	93370	824718	9	60279	666459
51	8.8499	33091	158259	9	62418	411172
4 50	8.8489	70672	747087	.0009	64566	656077
49	8.8480	06106	091010	9	66724	464721
48	8.8470	39381	626289	9	68891	901219
47	8.8460	70489	725070	9	71069	030259
46	8.8450	99420	694811	9	73255	917113
4 45	8.8441	26164	777698	.0009	75452	627637
44	8.8431	50712	150061	9	77659	228282
43	8.8421	73052	921779	9	79875	786100
42	8.8411	93177	135679	9	82102	368751
41	8.8402	11074	766928	9	84339	044508
4 40	8.8392	26735	722420	.0009	86585	882267

## Log Sines

c	log. sin.			$\Delta^1$		
4 40	8.8392	26735	722420	.0009	86585	882267
39	8.8382	40149	840153	9	88842	951552
38	8.8372	51306	888601	9	91110	322521
37	8.8362	60196	566080	9	93388	065976
36	8.8352	66808	500104	9	95676	253371
4 35	8.8342	71132	246733	.0009	97974	956817
34	8.8332	73157	289916	10	00284	249086
33	8.8322	72873	040830	10	02604	203631
32	8.8312	70268	837199	10	04934	894578
31	8.8302	65333	942621	10	07276	396749
4 30	8.8292	58057	545872	.0010	09628	785657
29	8.8282	48428	760215	10	11992	137522
28	8.8272	36436	622693	10	14366	529278
27	8.8262	22070	093415	10	16752	038580
26	8.8252	05318	054835	10	19148	743813
4 25	8.8241	86169	311022	.0010	21556	724099
24	8.8231	64612	586923	10	23976	059310
23	8.8221	40636	527613	10	26406	830074
22	8.8211	14229	697539	10	28849	117781
21	8.8200	85380	579758	10	31303	004598
4 20	8.8190	54077	575160	.0010	33768	573477
19	8.8180	20309	001683	10	36245	908157
18	8.8169	84063	093526	10	38735	093185
17	8.8159	45328	000341	10	41236	213919
16	8.8149	04091	786422	10	43749	356535
4 15	8.8138	60342	429887	.0010	46274	608046
14	8.8128	14067	821841	10	48812	056302
13	8.8117	65255	765539	10	51361	790008
12	8.8107	13893	975531	10	53923	898730
11	8.8096	59970	076801	10	56498	472907
4 10	8.8086	03471	603894	.0010	59085	603861
09	8.8075	44386	000033	10	61685	383808
08	8.8064	82700	616225	10	64297	905872
07	8.8054	18402	710353	10	66923	264088
06	8.8043	51479	446265	10	69561	553425
4 05	8.8032	81917	892840	.0010	72212	869784
04	8.8022	09705	023056	10	74877	310024
03	8.8011	34827	713032	10	77554	971961
02	8.8000	57272	741071	10	80245	954389
01	8.7989	77026	786682	10	82950	357087
4 00	8.7978	94076	429595	.0010	85668	280831



## Log Sines

c	log. sin.			$\Delta^1$		
4 00	8.7978	94076	429595	.0010	85668	280831
3 99	8.7968	08408	148764	10	88399	827415
98	8.7957	20008	321349	10	91145	099650
97	8.7946	28863	221699	10	93904	201389
96	8.7935	34959	020310	10	96677	237533
3 95	8.7924	38281	782777	.0010	99464	314047
94	8.7913	38817	468730	11	02265	537976
93	8.7902	36551	930754	11	05081	017451
92	8.7891	31470	913303	11	07910	861711
91	8.7880	23560	051592	11	10755	181114
3 90	8.7869	12804	870478	.0011	13614	087149
89	8.7857	99190	783329	11	16487	692456
88	8.7846	82703	090873	11	19376	110836
87	8.7835	63326	980037	11	22279	457266
86	8.7824	41047	522771	11	25197	847921
3 85	8.7813	15849	674850	.0011	28131	400180
84	8.7801	87718	274670	11	31080	232648
83	8.7790	56638	042022	11	34044	465170
82	8.7779	22593	576852	11	37024	218847
81	8.7767	85569	358005	11	40019	616057
3 80	8.7756	45549	741948	.0011	43030	780461
79	8.7745	02518	961487	11	46057	837032
78	8.7733	56461	124455	11	49100	912067
77	8.7722	07360	212388	11	52160	133202
76	8.7710	55200	079186	11	55235	629434
3 75	8.7698	99964	449752	.0011	58327	531140
74	8.7687	41636	918612	11	61435	970090
73	8.7675	80200	948522	11	64561	079470
72	8.7664	15639	869052	11	67702	993901
71	8.7652	47936	875151	11	70861	849457
3 70	8.7640	77075	025694	.0011	74037	783684
69	8.7629	03037	242010	11	77230	935622
68	8.7617	25806	306388	11	80441	445825
67	8.7605	45364	860563	11	83669	456380
66	8.7593	61695	404183	11	86915	110928
3 65	8.7581	74780	293255	.0011	90178	554690
64	8.7569	84601	738565	11	93459	934480
63	8.7557	91141	804085	11	96759	398736
62	8.7545	94382	405349	12	00077	097537
61	8.7533	94305	307812	12	03413	182628
3 60	8.7521	90892	125184	.0012	06767	807439

## Log Sines

c	log. sin.			$\Delta^1$		
3 60	8.7521	90892	125184	.0012	06767	807439
59	8.7509	84124	317745	12	10141	127118
58	8.7497	73983	190627	12	13533	298543
57	8.7485	60449	892084	12	16944	480357
56	8.7473	43505	411727	12	20374	832984
3 55	8.7461	23130	578743	.0012	23824	518661
54	8.7448	99306	060082	12	27293	701458
53	8.7436	72012	358624	12	30782	547312
52	8.7424	41229	811312	12	34291	224040
51	8.7412	06938	587272	12	37819	901384
3 50	8.7399	69118	685888	.0012	41368	751020
49	8.7387	27749	934868	12	44937	946601
48	8.7374	82811	988267	12	48527	663773
47	8.7362	34284	324494	12	52138	080216
46	8.7349	82146	244278	12	55769	375661
3 45	8.7337	26376	868617	.0012	59421	731931
44	8.7324	66955	136686	12	63095	332962
43	8.7312	03859	803724	12	66790	364842
42	8.7299	37069	438882	12	70507	015835
41	8.7286	66562	423047	12	74245	476419
3 40	8.7273	92316	946628	.0012	78005	939318
39	8.7261	14311	007310	12	81788	599528
38	8.7248	32522	407782	12	85593	654360
37	8.7235	46928	753422	12	89421	303470
36	8.7222	57507	449952	12	93271	748894
3 35	8.7209	64235	701058	.0012	97145	195084
34	8.7196	67090	505974	13	01041	848945
33	8.7183	66048	657029	13	04961	919867
32	8.7170	61086	737162	13	08905	619774
31	8.7157	52181	117388	13	12873	163149
3 30	8.7144	39307	954239	.0013	16864	767080
29	8.7131	22443	187159	13	20880	651300
28	8.7118	01562	535859	13	24921	038224
27	8.7104	76641	497635	13	28986	152992
26	8.7091	47655	344643	13	33076	223513
3 25	8.7078	14579	121130	.0013	37191	480502
24	8.7064	77387	640628	13	41332	157529
23	8.7051	36055	483099	13	45498	491061
22	8.7037	90556	992038	13	49690	720505
21	8.7024	40866	271533	13	53909	088258
3 20	8.7010	86957	183275	.0013	58153	839751

## Log Sines

c	log. sin.			$\Delta^1$		
3 20	8.7010	86957	183275	.0013	58153	839751
19	8.6997	28803	343524	13	62425	223498
18	8.6983	66378	120026	13	66723	491144
17	8.6969	99654	628882	13	71048	897510
16	8.6956	28605	731372	13	75401	700656
3 15	8.6942	53204	030716	.0013	79782	161917
14	8.6928	73421	868799	13	84190	545966
13	8.6914	89231	322833	13	88627	120861
12	8.6901	00604	201972	13	93092	158106
11	8.6887	07512	043866	13	97585	932700
3 10	8.6873	09926	111166	.0014	02108	723197
09	8.6859	07817	387969	14	06660	811762
08	8.6845	01156	576207	14	11242	484231
07	8.6830	89914	091976	14	15854	030170
06	8.6816	74060	061806	14	20495	742939
3 05	8.6802	53564	318867	.0014	25167	919745
04	8.6788	28396	399122	14	29870	861721
03	8.6773	98525	537401	14	34604	873974
02	8.6759	63920	663427	14	39370	265664
01	8.6745	24550	397763	14	44167	350064
3 00	8.6730	80383	047699	.0014	48996	444632
2 99	8.6716	31386	603067	14	53857	871079
98	8.6701	77528	731988	14	58751	955443
97	8.6687	18776	776545	14	63679	028157
96	8.6672	55097	748388	14	68639	424133
2 95	8.6657	86458	324255	.0014	73633	482827
94	8.6643	12824	841428	14	78661	548322
93	8.6628	34163	293106	14	83723	969408
92	8.6613	50439	323698	14	88821	099660
91	8.6598	61618	224038	14	93953	297523
2 90	8.6583	67664	926515	.0014	99120	926391
89	8.6568	68544	000124	15	04324	354702
88	8.6553	64219	645422	15	09563	956014
87	8.6538	54655	689408	15	14840	109107
86	8.6523	39815	580301	15	20153	198062
2 85	8.6508	19662	382239	.0015	25503	612362
84	8.6492	94158	769877	15	30891	746989
83	8.6477	63267	022888	15	36318	002511
82	8.6462	26949	020377	15	41782	785194
81	8.6446	85166	235183	15	47286	507095
2 80	8.6431	37879	728088	.0015	52829	586168

## Log Sines

c	log. sin.			$\Delta^1$		
2 80	8.6431	37879	728088	.0015	52829	586168
79	8.6415	85050	141920	15	58412	446368
78	8.6400	26637	695552	15	64035	517766
77	8.6384	62602	177786	15	69699	236652
76	8.6368	92902	941134	15	75404	045648
2 75	8.6353	17498	895486	.0015	81150	393829
74	8.6337	36348	501657	15	86938	736840
73	8.6321	49409	764817	15	92769	537008
72	8.6305	56640	227809	15	98643	263477
71	8.6289	57996	964332	16	04560	392327
2 70	8.6273	53436	572005	.0016	10521	406701
69	8.6257	42915	165304	16	16526	796947
68	8.6241	26388	368357	16	22577	060736
67	8.6225	03811	307621	16	28672	703216
66	8.6208	75138	604405	16	34814	237144
2 65	8.6192	40324	367261	.0016	41002	183029
64	8.6175	99322	184232	16	47237	069283
63	8.6159	52085	114949	16	53519	432370
62	8.6142	98565	682579	16	59849	816962
61	8.6126	38715	865617	16	66228	776091
2 60	8.6109	72487	089526	.0016	72656	871314
59	8.6092	99830	218212	16	79134	672882
58	8.6076	20695	545330	16	85662	759898
57	8.6059	35032	785432	16	92241	720501
56	8.6042	42791	064931	16	98872	152035
2 55	8.6025	43918	912896	.0017	05554	661233
54	8.6008	38364	251663	17	12289	864403
53	8.5991	26074	387260	17	19078	387613
52	8.5974	06995	999647	17	25920	866895
51	8.5956	81075	132752	17	32817	948428
2 50	8.5939	48257	184324	.0017	39770	288760
49	8.5922	08486	895564	17	46778	555002
48	8.5904	61708	340562	17	53843	425045
47	8.5887	07864	915517	17	60965	587785
46	8.5869	46899	327732	17	68145	743342
2 45	8.5851	78753	584390	.0017	75384	603285
44	8.5834	03368	981105	17	82682	890878
43	8.5816	20686	090227	17	90041	341312
42	8.5798	30644	748915	17	97460	701955
41	8.5780	33184	046960	18	04941	732608
2 40	8.5762	28242	314352	.0018	12485	205758

## Log Sines

c	log. sin.			$\Delta^1$		
2 40	8.5762	28242	314352	.0018	12485	205758
39	8.5744	15757	108594	18	20091	906851
38	8.5725	95665	201743	18	27762	634562
37	8.5707	67902	567181	18	35498	201069
36	8.5689	32404	366112	18	43299	432354
2 35	8.5670	89104	933758	.0018	51167	168480
34	8.5652	37937	765278	18	59102	263904
33	8.5633	78835	501374	18	67105	587786
32	8.5615	11729	913588	18	75178	024300
31	8.5596	36551	889288	18	83320	472965
2 30	8.5577	53231	416323	.0018	91533	848981
29	8.5558	61697	567342	18	99819	083563
28	8.5539	61878	483779	19	08177	124306
27	8.5520	53701	359473	19	16608	935534
26	8.5501	37092	423939	19	25115	498680
2 25	8.5482	11976	925259	.0019	33697	812662
24	8.5462	78279	112597	19	42356	894279
23	8.5443	35922	218318	19	51093	778604
22	8.5423	84828	439714	19	59909	519408
21	8.5404	24918	920306	19	68805	189575
2 20	8.5384	56113	730731	.0019	77781	881540
19	8.5364	78331	849191	19	86840	707740
18	8.5344	91491	141451	19	95982	801069
17	8.5324	95508	340382	20	05209	315351
16	8.5304	90299	025031	20	14521	425830
2 15	8.5284	75777	599201	.0020	23920	329663
14	8.5264	51857	269538	20	33407	246437
13	8.5244	18450	023101	20	42983	418700
12	8.5223	75466	604401	20	52650	112493
11	8.5203	22816	491908	20	62408	617922
2 10	8.5182	60407	873986	.0020	72260	249720
09	8.5161	88147	624266	20	82206	347846
08	8.5141	05941	276420	20	92248	278089
07	8.5120	13692	998331	21	02387	432695
06	8.5099	11305	565636	21	12625	231006
2 05	8.5077	98680	334630	.0021	22963	120132
04	8.5056	75717	214498	21	33402	575625
03	8.5035	42314	638873	21	43945	102184
02	8.5013	98369	536689	21	54592	234378
01	8.4992	43777	302311	21	65345	537392
2 00	8.4970	78431	764919	.0021	76206	607793

## Log Sines

c	log. sin.			$\Delta^1$		
2 00	8.4970	78431	764919	.0021	76206	607793
1 99	8.4949	02225	157126	21	87177	074321
98	8.4927	15048	082805	21	98258	598704
97	8.4905	16789	484101	22	09452	876496
96	8.4883	07336	607605	22	20761	637943
1 95	8.4860	86574	969662	.0022	32186	648876
94	8.4838	54388	320786	22	43729	711629
93	8.4816	10658	609157	22	55392	665986
92	8.4793	55265	943171	22	67177	390163
91	8.4770	88088	553008	22	79085	801812
1 90	8.4748	09002	751196	.0022	91119	859064
89	8.4725	17882	892132	23	03281	561601
88	8.4702	14601	330531	23	15572	951770
87	8.4678	99028	378761	23	27996	115718
86	8.4655	71032	263043	23	40553	184576
1 85	8.4632	30479	078467	.0023	53246	335683
84	8.4608	77232	742784	23	66077	793839
83	8.4585	11154	948945	23	79049	832605
82	8.4561	32105	116340	23	92164	775654
81	8.4537	39940	340686	24	05424	998149
1 80	8.4513	34515	342537	.0024	18832	928184
79	8.4489	15682	414353	24	32391	048263
78	8.4464	83291	366090	24	46101	896839
77	8.4440	37189	469251	24	59968	069890
76	8.4415	77221	399361	24	73992	222563
1 75	8.4391	03229	176798	.0024	88177	070872
74	8.4366	15052	105926	25	02525	393444
73	8.4341	12526	712482	25	17040	033342
72	8.4315	95486	679140	25	31723	899942
71	8.4290	63762	779198	25	46579	970871
1 70	8.4265	17182	808327	.0025	61611	294030
69	8.4239	55571	514297	25	76820	989672
68	8.4213	78750	524625	25	92212	252568
67	8.4187	86538	272057	26	07788	354237
66	8.4161	78749	917820	26	23552	645273
1 65	8.4135	55197	272547	.0026	39508	557741
64	8.4109	15688	714806	26	55659	607675
63	8.4082	60029	107131	26	72009	397660
62	8.4055	88019	709471	26	88561	619506
61	8.4028	99458	089965	27	05320	057035
1 60	8.4001	94138	032930	.0027	22288	588964

## Log Sines

c	log. sin.			$\Delta^1$		
1 60	8.4001	94138	032930	.0027	22288	588964
59	8.3974	71849	443966	27	39471	191894
58	8.3947	32378	252072	27	56871	943424
57	8.3919	75506	308648	27	74495	025370
56	8.3892	01011	283278	27	92344	727125
1 55	8.3864	08666	556153	.0028	10425	449137
54	8.3835	98241	107016	28	28741	706519
53	8.3807	69499	400497	28	47298	132823
52	8.3779	22201	267674	28	66099	483937
51	8.3750	56101	783737	28	85150	642152
1 50	8.3721	70951	141585	.0029	04456	620396
49	8.3692	66494	521189	29	24022	566627
48	8.3663	42471	954562	29	43853	768406
47	8.3633	98618	186156	29	63955	657674
46	8.3604	34662	528482	29	84333	815702
1 45	8.3574	50328	712780	.0030	04993	978264
44	8.3544	45334	734516	30	25942	041021
43	8.3514	19392	693495	30	47184	065129
42	8.3483	72208	628366	30	68726	283083
41	8.3453	03482	345283	30	90575	104829
1 40	8.3422	12907	240454	.0031	12737	124104
39	8.3391	00170	116350	31	35219	125090
38	8.3359	64950	991260	31	58028	089325
37	8.3328	06922	901935	31	81171	202944
36	8.3296	25751	698991	32	04655	864222
1 35	8.3264	21095	834769	.0032	28489	691459
34	8.3231	92606	143310	32	52680	531227
33	8.3199	39925	612083	32	77236	466983
32	8.3166	62689	145100	33	02165	828068
31	8.3133	60523	317032	33	27477	199142
1 30	8.3100	33046	117890	.0033	53179	430029
29	8.3066	79866	687861	33	79281	646044
28	8.3033	00585	041817	34	05793	258793
27	8.2998	94791	783024	34	32723	977488
26	8.2964	62067	805536	34	60083	820810
1 25	8.2930	01983	984726	.0034	87883	129329
24	8.2895	14100	855397	35	16132	578544
23	8.2859	97968	276853	35	44843	192553
22	8.2824	53125	084300	35	74026	358393
21	8.2788	79098	725907	36	03693	841107
1 20	8.2752	75404	884800	.0036	33857	799558

## Log Sines

c	log. sin.			$\Delta^1$		
1 20	8.2752	75404	884800	.0036	33857	799558
19	8.2716	41547	085242	36	64530	803048
18	8.2679	77016	282194	36	95725	848781
17	8.2642	81290	433413	37	27456	380231
16	8.2605	53834	053182	37	59736	306461
1 15	8.2567	94097	746721	.0037	92580	022454
14	8.2530	01517	724267	38	26002	430527
13	8.2491	75515	293740	38	60018	962866
12	8.2453	15496	330874	38	94645	605302
11	8.2414	20850	725572	39	29898	922356
1 10	8.2374	90951	803216	.0039	65796	083668
09	8.2335	25155	719548	40	02354	891879
08	8.2295	22800	827669	40	39593	812079
07	8.2254	83207	015590	40	77532	002909
06	8.2214	05675	012681	41	16189	349429
1 05	8.2172	89485	663252	.0041	55586	497878
04	8.2131	33899	165374	41	95744	892448
03	8.2089	38154	272926	42	36686	814211
02	8.2047	01467	458715	42	78435	422343
01	8.2004	23032	036372	43	21014	797820
1 00	8.1961	02017	238552	.0043	64449	989732
0 99	8.1917	37567	248820	44	08767	064439
98	8.1873	28800	184381	44	53993	157732
97	8.1828	74807	026649	45	00156	530253
96	8.1783	74650	496396	45	47286	626389
0 95	8.1738	27363	870007	.0045	95414	136905
94	8.1692	31949	733102	46	44571	065605
93	8.1645	87378	667497	46	94790	800302
92	8.1598	92587	867195	47	46108	188462
91	8.1551	46479	678733	47	98559	617845
0 90	8.1503	47920	060888	.0048	52183	102559
89	8.1454	95736	958329	49	07018	374960
88	8.1405	88718	583369	49	63106	983831
87	8.1356	25611	599538	50	20492	399395
86	8.1306	05119	200143	50	79220	125677
0 85	8.1255	25899	074466	.0051	39337	820871
84	8.1203	86561	253595	52	00895	426320
83	8.1151	85665	827275	52	63945	304920
82	8.1099	21720	522355	53	28542	389677
81	8.1045	93178	132678	53	94744	343362
0 80	8.0991	98433	789316	.0054	62611	730198



## Log Sines

c	log. sin.			$\Delta^1$		
0 80	8.0991	98433	789316	.0054	62611	730198
79	8.0937	35822	059118	55	32208	200697
78	8.0882	03613	858421	56	03600	690771
77	8.0826	00013	167650	56	76859	636495
76	8.0769	23153	531155	57	52059	205928
0 75	8.0711	71094	325227	.0058	29277	549588
74	8.0653	41816	775639	59	08597	071410
73	8.0594	33219	704229	59	90104	722100
72	8.0534	43114	982129	60	73892	317126
71	8.0473	69222	665003	61	60056	881769
0 70	8.0412	09165	783234	.0062	48701	025967
69	8.0349	60464	757267	63	39933	351998
68	8.0286	20531	405269	64	33868	898400
67	8.0221	86662	506869	65	30629	623955
66	8.0156	56032	882914	66	30344	936016
0 65	8.0090	25687	946898	.0067	33152	267975
64	8.0022	92535	678923	68	39197	711313
63	7.9954	53337	967610	69	48636	708334
62	7.9885	04701	259276	70	61634	812490
61	7.9814	43066	446786	71	78368	524122
0 60	7.9742	64697	922664	.0072	99026	210489
59	7.9669	65671	712175	74	23809	120188
58	7.9595	41862	591987	75	52932	503414
57	7.9519	88930	088573	76	86626	851246
56	7.9443	02303	237327	78	25139	268896
0 55	7.9364	77163	968431	.0079	68735	000197
54	7.9285	08428	968234	81	17699	123081
53	7.9203	90729	845153	82	72338	438870
52	7.9121	18391	406283	84	32983	581720
51	7.9036	85407	824563	85	99991	378749
0 50	7.8950	85416	445814	.0087	73747	496310
49	7.8863	11668	949504	89	54669	413702
48	7.8773	56999	535802	91	43209	772616
47	7.8682	13789	763186	93	39860	158856
46	7.8588	73929	604330	95	45155	382910
0 45	7.8493	28774	221420	.0097	59678	337801
44	7.8395	69095	883619	99	84065	527208
43	7.8295	85030	356411	102	19013	374255
42	7.8193	66016	982156	104	65285	442694
41	7.8089	00731	539462	107	23720	728261
0 40	7.7981	77010	811201	.0109	95243	209907

## Log Sines

c	log. sin.			$\Delta^1$		
0 40	7.7981	77010	811201	.0109	95243	209907
39	7.7871	81767	601294	112	80872	890090
38	7.7759	00894	711204	115	81738	602170
37	7.7643	19156	109034	118	99092	924015
36	7.7524	20063	185019	122	34329	613272
0 35	7.7401	85733	571747	.0125	89004	076230
34	7.7275	96729	495517	129	64857	504528
33	7.7146	31871	990989	133	63845	470089
32	7.7012	68026	520900	137	88171	969688
31	7.6874	79854	551212	142	40330	170610
0 30	7.6732	39524	380602	.0147	23151	448652
29	7.6585	16372	931950	152	39864	756626
28	7.6432	76508	175324	157	94168	955064
27	7.6274	82339	220260	163	90321	531943
26	7.6110	92017	688317	170	33248	214495
0 25	7.5940	58769	473822	.0177	28679	448086
24	7.5763	30090	025736	184	83321	753607
23	7.5578	46768	272129	193	05074	826918
22	7.5385	41693	445211	202	03309	291756
21	7.5183	38384	153455	211	89225	845344
0 20	7.4971	49158	308111	.0222	76325	058495
19	7.4748	72833	249616	234	81029	768800
18	7.4513	91803	480816	248	23521	216244
17	7.4265	68282	264572	263	28879	785495
16	7.4002	39402	479077	280	28668	235323
0 15	7.3722	10734	243754	.0299	63171	584456
14	7.3422	47562	659298	321	84635	150346
13	7.3100	62927	508952	347	62061	610089
12	7.2753	00865	898863	377	88519	812208
11	7.2375	12346	086655	413	92647	652964
0 10	7.1961	19698	433691	.0457	57456	627345
09	7.1503	62241	806346	511	52492	085982
08	7.0992	09749	720364	579	91920	188217
07	7.0412	17829	532147	669	46766	413074
06	6.9742	71063	119073	791	81226	402014
0 05	6.8950	89836	717059	.0969	09996	934376
04	6.7981	79839	782683	.1249	38724	106548
03	6.6732	41115	676135	.1760	91250	125859
02	6.4971	49865	550276	.3010	29990	306088
01	6.1961	19875	244188			

**TABLE 3:**  $\log \tan$

## Log Tangents

c	log. tan.			$\Delta^1$		
50 00	0.0000	00000	000000	.0001	36437	637628
49 99	9.9998	63562	362372	1	36437	651095
98	9.9997	27124	711277	1	36437	678026
97	9.9995	90687	033251	1	36437	718424
96	9.9994	54249	314827	1	36437	772287
49 95	9.9993	17811	542540	.0001	36437	839616
94	9.9991	81373	702924	1	36437	920412
93	9.9990	44935	782512	1	36438	014674
92	9.9989	08497	767838	1	36438	122400
91	9.9987	72059	645438	1	36438	243595
49 90	9.9986	35621	401843	.0001	36438	378253
89	9.9984	99183	023590	1	36438	526380
88	9.9983	62744	497210	1	36438	687972
87	9.9982	26305	809238	1	36438	863031
86	9.9980	89866	946207	1	36439	051555
49 85	9.9979	53427	894652	.0001	36439	253547
84	9.9978	16988	641105	1	36439	469006
83	9.9976	80549	172099	1	36439	697930
82	9.9975	44109	474169	1	36439	940322
81	9.9974	07669	533847	1	36440	196181
49 80	9.9972	71229	337666	.0001	36440	465507
79	9.9971	34788	872159	1	36440	748300
78	9.9969	98348	123859	1	36441	044561
77	9.9968	61907	079298	1	36441	354289
76	9.9967	25465	725009	1	36441	677485
49 75	9.9965	89024	047524	.0001	36442	014148
74	9.9964	52582	033376	1	36442	364280
73	9.9963	16139	669096	1	36442	727881
72	9.9961	79696	941215	1	36443	104948
71	9.9960	43253	836267	1	36443	495485
49 70	9.9959	06810	340782	.0001	36443	899491
69	9.9957	70366	441291	1	36444	316965
68	9.9956	33922	124326	1	36444	747909
67	9.9954	97477	376417	1	36445	192322
66	9.9953	61032	184095	1	36445	650205
49 65	9.9952	24586	533890	.0001	36446	121557
64	9.9950	88140	412333	1	36446	606379
63	9.9949	51693	805954	1	36447	104672
62	9.9948	15246	701282	1	36447	616436
61	9.9946	78799	084846	1	36448	141669
49 60	9.9945	42350	943177	.0001	36448	680375

## Log Tangents

c	log. tan.			$\Delta^1$		
49 60	9.9945	42350	943177	.0001	36448	680375
59	9.9944	05902	262802	1	36449	232551
58	9.9942	69453	030251	1	36449	798199
57	9.9941	33003	232052	1	36450	377319
56	9.9939	96552	854733	1	36450	969911
49 55	9.9938	60101	884822	.0001	36451	575975
54	9.9937	23650	308847	1	36452	195513
53	9.9935	87198	113334	1	36452	828523
52	9.9934	50745	284811	1	36453	475006
51	9.9933	14291	809805	1	36454	134964
49 50	9.9931	77837	674841	.0001	36454	808394
49	9.9930	41382	866447	1	36455	495301
48	9.9929	04927	371146	1	36456	195680
47	9.9927	68471	175466	1	36456	909536
46	9.9926	32014	265930	1	36457	636866
49 45	9.9924	95556	629064	.0001	36458	377673
44	9.9923	59098	251391	1	36459	131955
43	9.9922	22639	119436	1	36459	899714
42	9.9920	86179	219722	1	36460	680950
41	9.9919	49718	538772	1	36461	475663
49 40	9.9918	13257	063109	.0001	36462	283854
39	9.9916	76794	779255	1	36463	105522
38	9.9915	40331	673733	1	36463	940669
37	9.9914	03867	733064	1	36464	789295
36	9.9912	67402	943769	1	36465	651400
49 35	9.9911	30937	292369	.0001	36466	526985
34	9.9909	94470	765384	1	36467	416050
33	9.9908	58003	349334	1	36468	318595
32	9.9907	21535	030739	1	36469	234622
31	9.9905	85065	796117	1	36470	164130
49 30	9.9904	48595	631987	.0001	36471	107120
29	9.9903	12124	524867	1	36472	063592
28	9.9901	75652	461275	1	36473	033547
27	9.9900	39179	427728	1	36474	016986
26	9.9899	02705	410742	1	36475	013907
49 25	9.9897	66230	396835	.0001	36476	024315
24	9.9896	29754	372520	1	36477	048205
23	9.9894	93277	324315	1	36478	085583
22	9.9893	56799	238732	1	36479	136445
21	9.9892	20320	102287	1	36480	200793
49 20	9.9890	83839	901494	.0001	36481	278630

## Log Tangents

c	log. tan.			$\Delta^1$		
49 20	9.9890	83839	901494	.0001	36481	278630
19	9.9889	47358	622864	1	36482	369952
18	9.9888	10876	252912	1	36483	474764
17	9.9886	74392	778148	1	36484	593063
16	9.9885	37908	185085	1	36485	724852
49 15	9.9884	01422	460233	.0001	36486	870129
14	9.9882	64935	590104	1	36488	028899
13	9.9881	28447	561205	1	36489	201157
12	9.9879	91958	360048	1	36490	386907
11	9.9878	55467	973141	1	36491	586150
49 10	9.9877	18976	386991	.0001	36492	798885
09	9.9875	82483	588106	1	36494	025112
08	9.9874	45989	562994	1	36495	264834
07	9.9873	09494	298160	1	36496	518050
06	9.9871	72997	780110	1	36497	784761
49 05	9.9870	36499	995349	.0001	36499	064967
04	9.9869	00000	930382	1	36500	358669
03	9.9867	63500	571713	1	36501	665869
02	9.9866	26998	905844	1	36502	986566
01	9.9864	90495	919278	1	36504	320761
49 00	9.9863	53991	598517	.0001	36505	668454
48 99	9.9862	17485	930063	1	36507	029648
98	9.9860	80978	900415	1	36508	404341
97	9.9859	44470	496074	1	36509	792535
96	9.9858	07960	703539	1	36511	194230
48 95	9.9856	71449	509309	.0001	36512	609429
94	9.9855	34936	899880	1	36514	038129
93	9.9853	98422	861751	1	36515	480333
92	9.9852	61907	381418	1	36516	936041
91	9.9851	25390	445377	1	36518	405256
48 90	9.9849	88872	040121	.0001	36519	887974
89	9.9848	52352	152147	1	36521	384201
88	9.9847	15830	767946	1	36522	893933
87	9.9845	79307	874013	1	36524	417174
86	9.9844	42783	456839	1	36525	953924
48 85	9.9843	06257	502915	.0001	36527	504183
84	9.9841	69729	998732	1	36529	067952
83	9.9840	33200	930780	1	36530	645233
82	9.9838	96670	285547	1	36532	236025
81	9.9837	60138	049522	1	36533	840330
48 80	9.9836	23604	209192	.0001	36535	458147

## Log Tangents

c	log. tan.			$\Delta^1$		
48 80	9.9836	23604	209192	.0001	36535	458147
79	9.9834	87068	751045	1	36537	089480
78	9.9833	50531	661565	1	36538	734328
77	9.9832	13992	927237	1	36540	392690
76	9.9830	77452	534547	1	36542	064570
48 75	9.9829	40910	469977	.0001	36543	749967
74	9.9828	04366	720010	1	36545	448882
73	9.9826	67821	271128	1	36547	161317
72	9.9825	31274	109811	1	36548	887272
71	9.9823	94725	222539	1	36550	626746
48 70	9.9822	58174	595793	.0001	36552	379744
69	9.9821	21622	216049	1	36554	146263
68	9.9819	85068	069786	1	36555	926305
67	9.9818	48512	143481	1	36557	719873
66	9.9817	11954	423608	1	36559	526965
48 65	9.9815	75394	896643	.0001	36561	347584
64	9.9814	38833	549059	1	36563	181729
63	9.9813	02270	367330	1	36565	029402
62	9.9811	65705	337928	1	36566	890605
61	9.9810	29138	447323	1	36568	765336
48 60	9.9808	92569	681987	.0001	36570	653598
59	9.9807	55999	028389	1	36572	555392
58	9.9806	19426	472997	1	36574	470719
57	9.9804	82852	002278	1	36576	399579
56	9.9803	46275	602699	1	36578	341973
48 55	9.9802	09697	260726	.0001	36580	297903
54	9.9800	73116	962823	1	36582	267369
53	9.9799	36534	695454	1	36584	250373
52	9.9797	99950	445081	1	36586	246914
51	9.9796	63364	198167	1	36588	256995
48 50	9.9795	26775	941172	.0001	36590	280616
49	9.9793	90185	660556	1	36592	317779
48	9.9792	53593	342777	1	36594	368484
47	9.9791	16998	974293	1	36596	432732
46	9.9789	80402	541561	1	36598	510524
48 45	9.9788	43804	031037	.0001	36600	601862
44	9.9787	07203	429175	1	36602	706747
43	9.9785	70600	722428	1	36604	825178
42	9.9784	33995	897250	1	36606	957158
41	9.9782	97388	940092	1	36609	102688
48 40	9.9781	60779	837404	.0001	36611	261768

## Log Tangents

c	log. tan.			$\Delta^1$		
48 40	9.9781	60779	837404	.0001	36611	261768
39	9.9780	24168	575636	1	36613	434400
38	9.9778	87555	141236	1	36615	620585
37	9.9777	50939	520651	1	36617	820323
36	9.9776	14321	700328	1	36620	033617
48 35	9.9774	77701	666711	.0001	36622	260466
34	9.9773	41079	406245	1	36624	500873
33	9.9772	04454	905372	1	36626	754838
32	9.9770	67828	150534	1	36629	022361
31	9.9769	31199	128173	1	36631	303447
48 30	9.9767	94567	824726	.0001	36633	598092
29	9.9766	57934	226634	1	36635	906301
28	9.9765	21298	320333	1	36638	228074
27	9.9763	84660	092259	1	36640	563412
26	9.9762	48019	528847	1	36642	912316
48 25	9.9761	11376	616531	.0001	36645	274787
24	9.9759	74731	341744	1	36647	650827
23	9.9758	38083	690917	1	36650	040436
22	9.9757	01433	650481	1	36652	443617
21	9.9755	64781	206864	1	36654	860369
48 20	9.9754	28126	346495	.0001	36657	290695
19	9.9752	91469	055800	1	36659	734595
18	9.9751	54809	321205	1	36662	192070
17	9.9750	18147	129135	1	36664	663124
16	9.9748	81482	466011	1	36667	147754
48 15	9.9747	44815	318257	.0001	36669	645964
14	9.9746	08145	672293	1	36672	157755
13	9.9744	71473	514538	1	36674	683128
12	9.9743	34798	831410	1	36677	222083
11	9.9741	98121	609327	1	36679	774623
48 10	9.9740	61441	834704	.0001	36682	340749
09	9.9739	24759	493955	1	36684	920461
08	9.9737	88074	573494	1	36687	513762
07	9.9736	51387	059732	1	36690	120652
06	9.9735	14696	939080	1	36692	741132
48 05	9.9733	78004	197948	.0001	36695	375206
04	9.9732	41308	822742	1	36698	022871
03	9.9731	04610	799871	1	36700	684132
02	9.9729	67910	115739	1	36703	358989
01	9.9728	31206	756750	1	36706	047443
48 00	9.9726	94500	709307	.0001	36708	749496



## Log Tangents

c	log. tan.			$\Delta^1$		
48 00	9.9726	94500	709307	.0001	36708	749496
47 99	9.9725	57791	959811	1	36711	465148
98	9.9724	21080	494663	1	36714	194402
97	9.9722	84366	300261	1	36716	937259
96	9.9721	47649	363002	1	36719	693719
47 95	9.9720	10929	669283	.0001	36722	463786
94	9.9718	74207	205497	1	36725	247458
93	9.9717	37481	958039	1	36728	044739
92	9.9716	00753	913300	1	36730	855629
91	9.9714	64023	057671	1	36733	680131
47 90	9.9713	27289	377540	.0001	36736	518245
89	9.9711	90552	859295	1	36739	369972
88	9.9710	53813	489323	1	36742	235314
87	9.9709	17071	254009	1	36745	114274
86	9.9707	80326	139735	1	36748	006851
47 85	9.9706	43578	132884	.0001	36750	913047
84	9.9705	06827	219837	1	36753	832865
83	9.9703	70073	386972	1	36756	766305
82	9.9702	33316	620667	1	36759	713368
81	9.9700	96556	907299	1	36762	674057
47 80	9.9699	59794	233242	.0001	36765	648373
79	9.9698	23028	584869	1	36768	636316
78	9.9696	86259	948553	1	36771	637890
77	9.9695	49488	310663	1	36774	653095
76	9.9694	12713	657568	1	36777	681931
47 75	9.9692	75935	975637	.0001	36780	724403
74	9.9691	39155	251234	1	36783	780510
73	9.9690	02371	470724	1	36786	850255
72	9.9688	65584	620469	1	36789	933637
71	9.9687	28794	686832	1	36793	030661
47 70	9.9685	92001	656171	.0001	36796	141325
69	9.9684	55205	514846	1	36799	265634
68	9.9683	18406	249212	1	36802	403587
67	9.9681	81603	845625	1	36805	555187
66	9.9680	44798	290438	1	36808	720434
47 65	9.9679	07989	570004	.0001	36811	899332
64	9.9677	71177	670672	1	36815	091880
63	9.9676	34362	578792	1	36818	298081
62	9.9674	97544	280711	1	36821	517937
61	9.9673	60722	762774	1	36824	751448
47 60	9.9672	23898	011326	.0001	36827	998617

## Log Tangents

c	log. tan.			$\Delta^1$		
47 60	9.9672	23898	011326	.0001	36827	998617
59	9.9670	87070	012709	1	36831	259445
58	9.9669	50238	753264	1	36834	533934
57	9.9668	13404	219330	1	36837	822086
56	9.9666	76566	397244	1	36841	123900
47 55	9.9665	39725	273344	.0001	36844	439382
54	9.9664	02880	833962	1	36847	768530
53	9.9662	66033	065432	1	36851	111347
52	9.9661	29181	954085	1	36854	467835
51	9.9659	92327	486250	1	36857	837995
47 50	9.9658	55469	648255	.0001	36861	221830
49	9.9657	18608	426425	1	36864	619339
48	9.9655	81743	807086	1	36868	030527
47	9.9654	44875	776559	1	36871	455393
46	9.9653	08004	321166	1	36874	893940
47 45	9.9651	71129	427226	.0001	36878	346170
44	9.9650	34251	081056	1	36881	812083
43	9.9648	97369	268973	1	36885	291683
42	9.9647	60483	977290	1	36888	784970
41	9.9646	23595	192320	1	36892	291947
47 40	9.9644	86702	900373	.0001	36895	812614
39	9.9643	49807	087759	1	36899	346975
38	9.9642	12907	740784	1	36902	895030
37	9.9640	76004	845754	1	36906	456782
36	9.9639	39098	388972	1	36910	032232
47 35	9.9638	02188	356740	.0001	36913	621381
34	9.9636	65274	735359	1	36917	224233
33	9.9635	28357	511126	1	36920	840788
32	9.9633	91436	670338	1	36924	471048
31	9.9632	54512	199290	1	36928	115016
47 30	9.9631	17584	084274	.0001	36931	772692
29	9.9629	80652	311582	1	36935	444079
28	9.9628	43716	867503	1	36939	129179
27	9.9627	06777	738324	1	36942	827993
26	9.9625	69834	910331	1	36946	540523
47 25	9.9624	32888	369808	.0001	36950	266772
24	9.9622	95938	103036	1	36954	006740
23	9.9621	58984	096296	1	36957	760431
22	9.9620	22026	335865	1	36961	527845
21	9.9618	85064	808020	1	36965	308984
47 20	9.9617	48099	499036	.0001	36969	103852

## Log Tangents

c	log. tan.			$\Delta^1$		
47 20	9.9617	48099	499036	.0001	36969	103852
19	9.9616	11130	395184	1	36972	912448
18	9.9614	74157	482736	1	36976	734776
17	9.9613	37180	747960	1	36980	570836
16	9.9612	00200	177124	1	36984	420632
47 15	9.9610	63215	756492	.0001	36988	284166
14	9.9609	26227	472326	1	36992	161437
13	9.9607	89235	310889	1	36996	052450
12	9.9606	52239	258439	1	36999	957205
11	9.9605	15239	301234	1	37003	875705
47 10	9.9603	78235	425529	.0001	37007	807952
09	9.9602	41227	617577	1	37011	753947
08	9.9601	04215	863630	1	37015	713694
07	9.9599	67200	149936	1	37019	687192
06	9.9598	30180	462744	1	37023	674446
47 05	9.9596	93156	788298	.0001	37027	675455
04	9.9595	56129	112843	1	37031	690223
03	9.9594	19097	422620	1	37035	718752
02	9.9592	82061	703868	1	37039	761044
01	9.9591	45021	942824	1	37043	817100
47 00	9.9590	07978	125724	.0001	37047	886922
46 99	9.9588	70930	238802	1	37051	970513
98	9.9587	33878	268289	1	37056	067875
97	9.9585	96822	200414	1	37060	179010
96	9.9584	59762	021404	1	37064	303918
46 95	9.9583	22697	717486	.0001	37068	442605
94	9.9581	85629	274881	1	37072	595070
93	9.9580	48556	679811	1	37076	761316
92	9.9579	11479	918495	1	37080	941345
91	9.9577	74398	977150	1	37085	135159
46 90	9.9576	37313	841991	.0001	37089	342760
89	9.9575	00224	499231	1	37093	564150
88	9.9573	63130	935081	1	37097	799333
87	9.9572	26033	135748	1	37102	048308
86	9.9570	88931	087440	1	37106	311079
46 85	9.9569	51824	776361	.0001	37110	587648
84	9.9568	14714	188713	1	37114	878017
83	9.9566	77599	310696	1	37119	182188
82	9.9565	40480	128508	1	37123	500163
81	9.9564	03356	628345	1	37127	831945
46 80	9.9562	66228	796400	.0001	37132	177534

## Log Tangents

c	log. tan.			$\Delta^1$		
46 80	9.9562	66228	796400	.0001	37132	177534
79	9.9561	29096	618866	1	37136	536935
78	9.9559	91960	081931	1	37140	910149
77	9.9558	54819	171782	1	37145	297177
76	9.9557	17673	874605	1	37149	698023
46 75	9.9555	80524	176582	.0001	37154	112689
74	9.9554	43370	063893	1	37158	541175
73	9.9553	06211	522718	1	37162	983487
72	9.9551	69048	539231	1	37167	439623
71	9.9550	31881	099608	1	37171	909588
46 70	9.9548	94709	190020	.0001	37176	393384
69	9.9547	57532	796636	1	37180	891013
68	9.9546	20351	905623	1	37185	402477
67	9.9544	83166	503146	1	37189	927777
66	9.9543	45976	575369	1	37194	466918
46 65	9.9542	08782	108451	.0001	37199	019900
64	9.9540	71583	088551	1	37203	586726
63	9.9539	34379	501825	1	37208	167400
62	9.9537	97171	334425	1	37212	761920
61	9.9536	59958	572505	1	37217	370294
46 60	9.9535	22741	202211	.0001	37221	992519
59	9.9533	85519	209692	1	37226	628600
58	9.9532	48292	581092	1	37231	278539
57	9.9531	11061	302553	1	37235	942339
56	9.9529	73825	360214	1	37240	620001
46 55	9.9528	36584	740213	.0001	37245	311529
54	9.9526	99339	428684	1	37250	016922
53	9.9525	62089	411762	1	37254	736186
52	9.9524	24834	675576	1	37259	469322
51	9.9522	87575	206254	1	37264	216332
46 50	9.9521	50310	989922	.0001	37268	977219
49	9.9520	13042	012703	1	37273	751985
48	9.9518	75768	260718	1	37278	540633
47	9.9517	38489	720085	1	37283	343164
46	9.9516	01206	376921	1	37288	159582
46 45	9.9514	63918	217339	.0001	37292	989888
44	9.9513	26625	227451	1	37297	834086
43	9.9511	89327	393365	1	37302	692177
42	9.9510	52024	701188	1	37307	564165
41	9.9509	14717	137023	1	37312	450050
46 40	9.9507	77404	686973	.0001	37317	349836

## Log Tangents

c	log. tan.			$\Delta^1$		
46 40	9.9507	77404	686973	.0001	37317	349836
39	9.9506	40087	337137	1	37322	263526
38	9.9505	02765	073611	1	37327	191122
37	9.9503	65437	882489	1	37332	132626
36	9.9502	28105	749863	1	37337	088040
46 35	9.9500	90768	661823	.0001	37342	057368
34	9.9499	53426	604455	1	37347	040612
33	9.9498	16079	563843	1	37352	037774
32	9.9496	78727	526069	1	37357	048857
31	9.9495	41370	477212	1	37362	073862
46 30	9.9494	04008	403350	.0001	37367	112794
29	9.9492	66641	290556	1	37372	165654
28	9.9491	29269	124902	1	37377	232444
27	9.9489	91891	892458	1	37382	313169
26	9.9488	54509	579289	1	37387	407828
46 25	9.9487	17122	171461	.0001	37392	516427
24	9.9485	79729	655034	1	37397	638967
23	9.9484	42332	016067	1	37402	775450
22	9.9483	04929	240617	1	37407	925879
21	9.9481	67521	314738	1	37413	090257
46 20	9.9480	30108	224481	.0001	37418	268586
19	9.9478	92689	955895	1	37423	460870
18	9.9477	55266	495025	1	37428	667110
17	9.9476	17837	827915	1	37433	887309
16	9.9474	80403	940606	1	37439	121470
46 15	9.9473	42964	819136	.0001	37444	369596
14	9.9472	05520	449540	1	37449	631688
13	9.9470	68070	817852	1	37454	907750
12	9.9469	30615	910102	1	37460	197784
11	9.9467	93155	712318	1	37465	501795
46 10	9.9466	55690	210523	.0001	37470	819781
09	9.9465	18219	390742	1	37476	151749
08	9.9463	80743	238993	1	37481	497700
07	9.9462	43261	741293	1	37486	857636
06	9.9461	05774	883657	1	37492	231561
46 05	9.9459	68282	652096	.0001	37497	619476
04	9.9458	30785	032620	1	37503	021387
03	9.9456	93282	011233	1	37508	437293
02	9.9455	55773	573940	1	37513	867198
01	9.9454	18259	706742	1	37519	311105
46 00	9.9452	80740	395637	.0001	37524	769018

## Log Tangents

c	log. tan.			$\Delta^1$		
46 00	9.9452	80740	395637	.0001	37524	769018
45 99	9.9451	43215	626619	1	37530	240938
98	9.9450	05685	385681	1	37535	726868
97	9.9448	68149	658813	1	37541	226810
96	9.9447	30608	432003	1	37546	740770
45 95	9.9445	93061	691233	.0001	37552	268746
94	9.9444	55509	422487	1	37557	810745
93	9.9443	17951	611742	1	37563	366768
92	9.9441	80388	244974	1	37568	936818
91	9.9440	42819	308156	1	37574	520896
45 90	9.9439	05244	787260	.0001	37580	119008
89	9.9437	67664	668252	1	37585	731156
88	9.9436	30078	937096	1	37591	357340
87	9.9434	92487	579756	1	37596	997567
86	9.9433	54890	582189	1	37602	651837
45 85	9.9432	17287	930352	.0001	37608	320154
84	9.9430	79679	610198	1	37614	002520
83	9.9429	42065	607678	1	37619	698938
82	9.9428	04445	908740	1	37625	409413
81	9.9426	66820	499327	1	37631	133944
45 80	9.9425	29189	365383	.0001	37636	872538
79	9.9423	91552	492845	1	37642	625195
78	9.9422	53909	867650	1	37648	391918
77	9.9421	16261	475732	1	37654	172712
76	9.9419	78607	303020	1	37659	967578
45 75	9.9418	40947	335442	.0001	37665	776520
74	9.9417	03281	558922	1	37671	599540
73	9.9415	65609	959382	1	37677	436642
72	9.9414	27932	522740	1	37683	287828
71	9.9412	90249	234912	1	37689	153101
45 70	9.9411	52560	081811	.0001	37695	032465
69	9.9410	14865	049346	1	37700	925921
68	9.9408	77164	123425	1	37706	833475
67	9.9407	39457	289950	1	37712	755126
66	9.9406	01744	534824	1	37718	690881
45 65	9.9404	64025	843943	.0001	37724	640741
64	9.9403	26301	203202	1	37730	604709
63	9.9401	88570	598493	1	37736	582787
62	9.9400	50834	015706	1	37742	574981
61	9.9399	13091	440725	1	37748	581291
45 60	9.9397	75342	859434	.0001	37754	601721

## Log Tangents

c	log. tan.			$\Delta^1$		
45 60	9.9397	75342	859434	.0001	37754	601721
59	9.9396	37588	257713	1	37760	636276
58	9.9394	99827	621437	1	37766	684956
57	9.9393	62060	936481	1	37772	747766
56	9.9392	24288	188715	1	37778	824708
45 55	9.9390	86509	364007	.0001	37784	915785
54	9.9389	48724	448222	1	37791	021002
53	9.9388	10933	427220	1	37797	140360
52	9.9386	73136	286860	1	37803	273863
51	9.9385	35333	012997	1	37809	421514
45 50	9.9383	97523	591483	.0001	37815	583315
49	9.9382	59708	008168	1	37821	759271
48	9.9381	21886	248897	1	37827	949384
47	9.9379	84058	299513	1	37834	153658
46	9.9378	46224	145855	1	37840	372095
45 45	9.9377	08383	773760	.0001	37846	604698
44	9.9375	70537	169062	1	37852	851471
43	9.9374	32684	317591	1	37859	112418
42	9.9372	94825	205173	1	37865	387541
41	9.9371	56959	817632	1	37871	676842
45 40	9.9370	19088	140790	.0001	37877	980327
39	9.9368	81210	160463	1	37884	297996
38	9.9367	43325	862467	1	37890	629856
37	9.9366	05435	232611	1	37896	975906
36	9.9364	67538	256705	1	37903	336152
45 35	9.9363	29634	920553	.0001	37909	710597
34	9.9361	91725	209956	1	37916	099244
33	9.9360	53809	110712	1	37922	502094
32	9.9359	15886	608618	1	37928	919155
31	9.9357	77957	689463	1	37935	350425
45 30	9.9356	40022	339038	.0001	37941	795912
29	9.9355	02080	543126	1	37948	255615
28	9.9353	64132	287511	1	37954	729540
27	9.9352	26177	557971	1	37961	217689
26	9.9350	88216	340282	1	37967	720068
45 25	9.9349	50248	620214	.0001	37974	236675
24	9.9348	12274	383539	1	37980	767519
23	9.9346	74293	616020	1	37987	312599
22	9.9345	36306	303421	1	37993	871921
21	9.9343	98312	431500	1	38000	445487
45 20	9.9342	60311	986013	.0001	38007	033300

## Log Tangents

c	log. tan.			$\Delta^1$		
45 20	9.9342	60311	986013	.0001	38007	033300
19	9.9341	22304	952713	1	38013	635366
18	9.9339	84291	317347	1	38020	251685
17	9.9338	46271	065662	1	38026	882262
16	9.9337	08244	183400	1	38033	527100
45 15	9.9335	70210	656300	.0001	38040	186203
14	9.9334	32170	470097	1	38046	859573
13	9.9332	94123	610524	1	38053	547215
12	9.9331	56070	063309	1	38060	249132
11	9.9330	18009	814177	1	38066	965326
45 10	9.9328	79942	848851	.0001	38073	695802
09	9.9327	41869	153049	1	38080	440562
08	9.9326	03788	712487	1	38087	199612
07	9.9324	65701	512875	1	38093	972953
06	9.9323	27607	539922	1	38100	760589
45 05	9.9321	89506	779333	.0001	38107	562523
04	9.9320	51399	216810	1	38114	378761
03	9.9319	13284	838049	1	38121	209302
02	9.9317	75163	628747	1	38128	054154
01	9.9316	37035	574593	1	38134	913318
45 00	9.9314	98900	661275	.0001	38141	786798
44 99	9.9313	60758	874477	1	38148	674597
98	9.9312	22610	199880	1	38155	576719
97	9.9310	84454	623161	1	38162	493168
96	9.9309	46292	129993	1	38169	423947
44 95	9.9308	08122	706046	.0001	38176	369059
94	9.9306	69946	336987	1	38183	328509
93	9.9305	31763	008478	1	38190	302298
92	9.9303	93572	706180	1	38197	290433
91	9.9302	55375	415747	1	38204	292914
44 90	9.9301	17171	122833	.0001	38211	309748
89	9.9299	78959	813085	1	38218	340935
88	9.9298	40741	472150	1	38225	386482
87	9.9297	02516	085668	1	38232	446390
86	9.9295	64283	639278	1	38239	520664
44 85	9.9294	26044	118614	.0001	38246	609308
84	9.9292	87797	509306	1	38253	712323
83	9.9291	49543	796983	1	38260	829716
82	9.9290	11282	967267	1	38267	961488
81	9.9288	73015	005779	1	38275	107645
44 80	9.9287	34739	898134	.0001	38282	268188



## Log Tangents

c	log. tan.			$\Delta^1$		
44 80	9.9287	34739	898134	.0001	38282	268188
79	9.9285	96457	629946	1	38289	443122
78	9.9284	58168	186824	1	38296	632452
77	9.9283	19871	554372	1	38303	836179
76	9.9281	81567	718193	1	38311	054308
44 75	9.9280	43256	663885	.0001	38318	286844
74	9.9279	04938	377041	1	38325	533788
73	9.9277	66612	843253	1	38332	795145
72	9.9276	28280	048108	1	38340	070919
71	9.9274	89939	977189	1	38347	361114
44 70	9.9273	51592	616075	.0001	38354	665733
69	9.9272	13237	950342	1	38361	984780
68	9.9270	74875	965562	1	38369	318258
67	9.9269	36506	647304	1	38376	666171
66	9.9267	98129	981133	1	38384	028525
44 65	9.9266	59745	952608	.0001	38391	405320
64	9.9265	21354	547288	1	38398	796563
63	9.9263	82955	750725	1	38406	202255
62	9.9262	44549	548470	1	38413	622402
61	9.9261	06135	926068	1	38421	057007
44 60	9.9259	67714	869061	.0001	38428	506074
59	9.9258	29286	362987	1	38435	969607
58	9.9256	90850	393380	1	38443	447608
57	9.9255	52406	945772	1	38450	940083
56	9.9254	13956	005689	1	38458	447035
44 55	9.9252	75497	558654	.0001	38465	968468
54	9.9251	37031	590186	1	38473	504386
53	9.9249	98558	085800	1	38481	054793
52	9.9248	60077	031007	1	38488	619691
51	9.9247	21588	411316	1	38496	199086
44 50	9.9245	83092	212230	.0001	38503	792981
49	9.9244	44588	419249	1	38511	401381
48	9.9243	06077	017868	1	38519	024288
47	9.9241	67557	993580	1	38526	661707
46	9.9240	29031	331873	1	38534	313642
44 45	9.9238	90497	018231	.0001	38541	980098
44	9.9237	51955	038133	1	38549	661075
43	9.9236	13405	377058	1	38557	356581
42	9.9234	74848	020477	1	38565	066619
41	9.9233	36282	953858	1	38572	791192
44 40	9.9231	97710	162666	.0001	38580	530303

## Log Tangents

c	log. tan.			$\Delta^1$		
44 40	9.9231	97710	162666	.0001	38580	530303
39	9.9230	59129	632363	1	38588	283960
38	9.9229	20541	348403	1	38596	052162
37	9.9227	81945	296241	1	38603	834917
36	9.9226	43341	461324	1	38611	632226
44 35	9.9225	04729	829098	.0001	38619	444095
34	9.9223	66110	385003	1	38627	270528
33	9.9222	27483	114475	1	38635	111527
32	9.9220	88848	002948	1	38642	967097
31	9.9219	50205	035851	1	38650	837244
44 30	9.9218	11554	198607	.0001	38658	721970
29	9.9216	72895	476637	1	38666	621278
28	9.9215	34228	855359	1	38674	535175
27	9.9213	95554	320184	1	38682	463664
26	9.9212	56871	856520	1	38690	406747
44 25	9.9211	18181	449773	.0001	38698	364430
24	9.9209	79483	085343	1	38706	336718
23	9.9208	40776	748625	1	38714	323613
22	9.9207	02062	425012	1	38722	325120
21	9.9205	63340	099892	1	38730	341243
44 20	9.9204	24609	758649	.0001	38738	371986
19	9.9202	85871	386663	1	38746	417354
18	9.9201	47124	969309	1	38754	477351
17	9.9200	08370	491958	1	38762	551979
16	9.9198	69607	939979	1	38770	641244
44 15	9.9197	30837	298735	.0001	38778	745151
14	9.9195	92058	553584	1	38786	863703
13	9.9194	53271	689881	1	38794	996903
12	9.9193	14476	692978	1	38803	144757
11	9.9191	75673	548221	1	38811	307269
44 10	9.9190	36862	240952	.0001	38819	484443
09	9.9188	98042	756509	1	38827	676283
08	9.9187	59215	080226	1	38835	882792
07	9.9186	20379	197434	1	38844	103976
06	9.9184	81535	093458	1	38852	339840
44 05	9.9183	42682	753618	.0001	38860	590385
04	9.9182	03822	163233	1	38868	855618
03	9.9180	64953	307615	1	38877	135543
02	9.9179	26076	172072	1	38885	430163
01	9.9177	87190	741909	1	38893	739483
44 00	9.9176	48297	002426	.0001	38902	063508

## Log Tangents

c	log. tan.			$\Delta^1$		
44 00	9.9176	48297	002426	.0001	38902	063508
43 99	9.9175	09394	938918	1	38910	402240
98	9.9173	70484	536678	1	38918	755686
97	9.9172	31565	780992	1	38927	123849
96	9.9170	92638	657143	1	38935	506733
43 95	9.9169	53703	150410	.0001	38943	904343
94	9.9168	14759	246067	1	38952	316684
93	9.9166	75806	929383	1	38960	743757
92	9.9165	36846	185626	1	38969	185571
91	9.9163	97877	000055	1	38977	642128
43 90	9.9162	58899	357927	.0001	38986	113431
89	9.9161	19913	244496	1	38994	599487
88	9.9159	80918	645009	1	39003	100298
87	9.9158	41915	544711	1	39011	615871
86	9.9157	02903	928840	1	39020	146209
43 85	9.9155	63883	782631	.0001	39028	691316
84	9.9154	24855	091315	1	39037	251196
83	9.9152	85817	840119	1	39045	825856
82	9.9151	46772	014263	1	39054	415296
81	9.9150	07717	598967	1	39063	019526
43 80	9.9148	68654	579441	.0001	39071	638546
79	9.9147	29582	940895	1	39080	272362
78	9.9145	90502	668533	1	39088	920979
77	9.9144	51413	747554	1	39097	584401
76	9.9143	12316	163153	1	39106	262631
43 75	9.9141	73209	900522	.0001	39114	955676
74	9.9140	34094	944846	1	39123	663540
73	9.9138	94971	281306	1	39132	386226
72	9.9137	55838	895080	1	39141	123739
71	9.9136	16697	771341	1	39149	876085
43 70	9.9134	77547	895256	.0001	39158	643266
69	9.9133	38389	251990	1	39167	425290
68	9.9131	99221	826700	1	39176	222158
67	9.9130	60045	604542	1	39185	033876
66	9.9129	20860	570666	1	39193	860449
43 65	9.9127	81666	710217	.0001	39202	701882
64	9.9126	42464	008335	1	39211	558177
63	9.9125	03252	450158	1	39220	429342
62	9.9123	64032	020816	1	39229	315379
61	9.9122	24802	705437	1	39238	216294
43 60	9.9120	85564	489143	.0001	39247	132091

## Log Tangents

c	log. tan.			$\Delta^1$		
43 60	9.9120	85564	489143	.0001	39247	132091
59	9.9119	46317	357052	1	39256	062774
58	9.9118	07061	294278	1	39265	008350
57	9.9116	67796	285928	1	39273	968822
56	9.9115	28522	317106	1	39282	944193
43 55	9.9113	89239	372913	.0001	39291	934470
54	9.9112	49947	438443	1	39300	939658
53	9.9111	10646	498785	1	39309	959759
52	9.9109	71336	539026	1	39318	994781
51	9.9108	32017	544245	1	39328	044726
43 50	9.9106	92689	499519	.0001	39337	109601
49	9.9105	53352	389918	1	39346	189408
48	9.9104	14006	200510	1	39355	284153
47	9.9102	74650	916357	1	39364	393842
46	9.9101	35286	522515	1	39373	518478
43 45	9.9099	95913	004037	.0001	39382	658067
44	9.9098	56530	345970	1	39391	812612
43	9.9097	17138	533358	1	39400	982119
42	9.9095	77737	551239	1	39410	166594
41	9.9094	38327	384645	1	39419	366038
43 40	9.9092	98908	018607	.0001	39428	580461
39	9.9091	59479	438146	1	39437	809862
38	9.9090	20041	628284	1	39447	054251
37	9.9088	80594	574033	1	39456	313630
36	9.9087	41138	260403	1	39465	588003
43 35	9.9086	01672	672400	.0001	39474	877378
34	9.9084	62197	795022	1	39484	181757
33	9.9083	22713	613265	1	39493	501146
32	9.9081	83220	112119	1	39502	835550
31	9.9080	43717	276569	1	39512	184973
43 30	9.9079	04205	091596	.0001	39521	549421
29	9.9077	64683	542175	1	39530	928899
28	9.9076	25152	613276	1	39540	323409
27	9.9074	85612	289867	1	39549	732960
26	9.9073	46062	556907	1	39559	157554
43 25	9.9072	06503	399353	.0001	39568	597197
24	9.9070	66934	802156	1	39578	051894
23	9.9069	27356	750262	1	39587	521650
22	9.9067	87769	228612	1	39597	006469
21	9.9066	48172	222143	1	39606	506357
43 20	9.9065	08565	715786	.0001	39616	021318

## Log Tangents

c	log. tan.			$\Delta^1$		
43 20	9.9065	08565	715786	.0001	39616	021318
19	9.9063	68949	694468	1	39625	551359
18	9.9062	29324	143109	1	39635	096482
17	9.9060	89689	046627	1	39644	656694
16	9.9059	50044	389933	1	39654	231999
43 15	9.9058	10390	157934	.0001	39663	822403
14	9.9056	70726	335531	1	39673	427911
13	9.9055	31052	907620	1	39683	048526
12	9.9053	91369	859094	1	39692	684255
11	9.9052	51677	174839	1	39702	335104
43 10	9.9051	11974	839735	.0001	39712	001074
09	9.9049	72262	838661	1	39721	682174
08	9.9048	32541	156487	1	39731	378408
07	9.9046	92809	778079	1	39741	089780
06	9.9045	53068	688299	1	39750	816296
43 05	9.9044	13317	872003	.0001	39760	557961
04	9.9042	73557	314042	1	39770	314780
03	9.9041	33786	999262	1	39780	086758
02	9.9039	94006	912504	1	39789	873900
01	9.9038	54217	038604	1	39799	676211
43 00	9.9037	14417	362393	.0001	39809	493697
42 99	9.9035	74607	868696	1	39819	326363
98	9.9034	34788	542333	1	39829	174213
97	9.9032	94959	368120	1	39839	037252
96	9.9031	55120	330868	1	39848	915488
42 95	9.9030	15271	415380	.0001	39858	808922
94	9.9028	75412	606458	1	39868	717564
93	9.9027	35543	888894	1	39878	641414
92	9.9025	95665	247480	1	39888	580481
91	9.9024	55776	666999	1	39898	534768
42 90	9.9023	15878	132231	.0001	39908	504283
89	9.9021	75969	627948	1	39918	489028
88	9.9020	36051	138920	1	39928	489010
87	9.9018	96122	649910	1	39938	504233
86	9.9017	56184	145677	1	39948	534705
42 85	9.9016	16235	610972	.0001	39958	580428
84	9.9014	76277	030544	1	39968	641408
83	9.9013	36308	389136	1	39978	717653
82	9.9011	96329	671483	1	39988	809164
81	9.9010	56340	862319	1	39998	915950
42 80	9.9009	16341	946369	.0001	40009	038015

## Log Tangents

c	log. tan.			$\Delta^1$		
42 80	9.9009	16341	946369	.0001	40009	038015
79	9.9007	76332	908354	1	40019	175363
78	9.9006	36313	732991	1	40029	328001
77	9.9004	96284	404990	1	40039	495933
76	9.9003	56244	909057	1	40049	679166
42 75	9.9002	16195	229891	.0001	40059	877705
74	9.9000	76135	352186	1	40070	091553
73	9.8999	36065	260633	1	40080	320719
72	9.8997	95984	939914	1	40090	565205
71	9.8996	55894	374709	1	40100	825019
42 70	9.8995	15793	549690	.0001	40111	100165
69	9.8993	75682	449525	1	40121	390649
68	9.8992	35561	058876	1	40131	696476
67	9.8990	95429	362400	1	40142	017652
66	9.8989	55287	344748	1	40152	354180
42 65	9.8988	15134	990568	.0001	40162	706070
64	9.8986	74972	284498	1	40173	073323
63	9.8985	34799	211175	1	40183	455948
62	9.8983	94615	755227	1	40193	853947
61	9.8982	54421	901280	1	40204	267329
42 60	9.8981	14217	633951	.0001	40214	696096
59	9.8979	74002	937855	1	40225	140257
58	9.8978	33777	797598	1	40235	599815
57	9.8976	93542	197783	1	40246	074776
56	9.8975	53296	123007	1	40256	565146
42 55	9.8974	13039	557861	.0001	40267	070930
54	9.8972	72772	486931	1	40277	592134
53	9.8971	32494	894797	1	40288	128764
52	9.8969	92206	766033	1	40298	680825
51	9.8968	51908	085208	1	40309	248321
42 50	9.8967	11598	836887	.0001	40319	831261
49	9.8965	71279	005626	1	40330	429647
48	9.8964	30948	575979	1	40341	043487
47	9.8962	90607	532492	1	40351	672787
46	9.8961	50255	859705	1	40362	317550
42 45	9.8960	09893	542155	.0001	40372	977783
44	9.8958	69520	564372	1	40383	653492
43	9.8957	29136	910880	1	40394	344684
42	9.8955	88742	566196	1	40405	051360
41	9.8954	48337	514836	1	40415	773531
42 40	9.8953	07921	741305	.0001	40426	511200

## Log Tangents

c	log. tan.			$\Delta^1$
42 40	9.8953	07921	741305	.0001 40426 511200
39	9.8951	67495	230105	1 40437 264373
38	9.8950	27057	965732	1 40448 033055
37	9.8948	86609	932677	1 40458 817252
36	9.8947	46151	115425	1 40469 616972
42 35	9.8946	05681	498453	.0001 40480 432217
34	9.8944	65201	066236	1 40491 262996
33	9.8943	24709	803240	1 40502 109312
32	9.8941	84207	693928	1 40512 971172
31	9.8940	43694	722756	1 40523 848583
42 30	9.8939	03170	874173	.0001 40534 741548
29	9.8937	62636	132625	1 40545 650076
28	9.8936	22090	482549	1 40556 574170
27	9.8934	81533	908379	1 40567 513836
26	9.8933	40966	394543	1 40578 469083
42 25	9.8932	00387	925460	.0001 40589 439912
24	9.8930	59798	485548	1 40600 426333
23	9.8929	19198	059215	1 40611 428349
22	9.8927	78586	630866	1 40622 445967
21	9.8926	37964	184899	1 40633 479194
42 20	9.8924	97330	705705	.0001 40644 528033
19	9.8923	56686	177672	1 40655 592492
18	9.8922	16030	585180	1 40666 672577
17	9.8920	75363	912603	1 40677 768293
16	9.8919	34686	144310	1 40688 879646
42 15	9.8917	93997	264664	.0001 40700 006641
14	9.8916	53297	258023	1 40711 149286
13	9.8915	12586	108737	1 40722 307586
12	9.8913	71863	801151	1 40733 481547
11	9.8912	31130	319604	1 40744 671173
42 10	9.8910	90385	648431	.0001 40755 876474
09	9.8909	49629	771957	1 40767 097451
08	9.8908	08862	674506	1 40778 334115
07	9.8906	68084	340391	1 40789 586469
06	9.8905	27294	753922	1 40800 854518
42 05	9.8903	86493	899404	.0001 40812 138271
04	9.8902	45681	761133	1 40823 437732
03	9.8901	04858	323401	1 40834 752908
02	9.8899	64023	570493	1 40846 083804
01	9.8898	23177	486689	1 40857 430427
42 00	9.8896	82320	056262	.0001 40868 792782

## Log Tangents

c	log. tan.			$\Delta^1$		
42 00	9.8896	82320	056262	.0001	40868	792782
41 99	9.8895	41451	263480	1	40880	170877
98	9.8894	00571	092603	1	40891	564715
97	9.8892	59679	527888	1	40902	974305
96	9.8891	18776	553583	1	40914	399652
41 95	9.8889	77862	153931	.0001	40925	840761
94	9.8888	36936	313170	1	40937	297640
93	9.8886	95999	015530	1	40948	770294
92	9.8885	55050	245236	1	40960	258730
91	9.8884	14089	986506	1	40971	762951
41 90	9.8882	73118	223555	.0001	40983	282968
89	9.8881	32134	940587	1	40994	818784
88	9.8879	91140	121803	1	41006	370406
87	9.8878	50133	751397	1	41017	937840
86	9.8877	09115	813557	1	41029	521092
41 85	9.8875	68086	292465	.0001	41041	120168
84	9.8874	27045	172297	1	41052	735075
83	9.8872	85992	437222	1	41064	365819
82	9.8871	44928	071403	1	41076	012406
81	9.8870	03852	058997	1	41087	674843
41 80	9.8868	62764	384154	.0001	41099	353134
79	9.8867	21665	031020	1	41111	047287
78	9.8865	80553	983733	1	41122	757308
77	9.8864	39431	226425	1	41134	483204
76	9.8862	98296	743221	1	41146	224980
41 75	9.8861	57150	518241	.0001	41157	982643
74	9.8860	15992	535598	1	41169	756199
73	9.8858	74822	779399	1	41181	545654
72	9.8857	33641	233745	1	41193	351015
71	9.8855	92447	882730	1	41205	172288
41 70	9.8854	51242	710442	.0001	41217	009479
69	9.8853	10025	700963	1	41228	862595
68	9.8851	68796	838368	1	41240	731643
67	9.8850	27556	106725	1	41252	616627
66	9.8848	86303	490098	1	41264	517555
41 65	9.8847	45038	972543	.0001	41276	434433
64	9.8846	03762	538110	1	41288	367268
63	9.8844	62474	170842	1	41300	316066
62	9.8843	21173	854776	1	41312	280833
61	9.8841	79861	573943	1	41324	261576
41 60	9.8840	38537	312367	.0001	41336	258301



## Log Tangents

c	log. tan.			$\Delta^1$		
41 60	9.8840	38537	312367	.0001	41336	258301
59	9.8838	97201	054066	1	41348	271015
58	9.8837	55852	783051	1	41360	299723
57	9.8836	14492	483328	1	41372	344434
56	9.8834	73120	138894	1	41384	405153
41 55	9.8833	31735	733741	.0001	41396	481885
54	9.8831	90339	251856	1	41408	574638
53	9.8830	48930	677218	1	41420	683420
52	9.8829	07509	993798	1	41432	808236
51	9.8827	66077	185562	1	41444	949091
41 50	9.8826	24632	236471	.0001	41457	105993
49	9.8824	83175	130478	1	41469	278950
48	9.8823	41705	851528	1	41481	467967
47	9.8822	00224	383561	1	41493	673049
46	9.8820	58730	710512	1	41505	894206
41 45	9.8819	17224	816306	.0001	41518	131442
44	9.8817	75706	684864	1	41530	384764
43	9.8816	34176	300100	1	41542	654180
42	9.8814	92633	645920	1	41554	939695
41	9.8813	51078	706225	1	41567	241316
41 40	9.8812	09511	464909	.0001	41579	559051
39	9.8810	67931	905858	1	41591	892904
38	9.8809	26340	012954	1	41604	242884
37	9.8807	84735	770070	1	41616	608996
36	9.8806	43119	161074	1	41628	991249
41 35	9.8805	01490	169825	.0001	41641	389647
34	9.8803	59848	780178	1	41653	804198
33	9.8802	18194	975980	1	41666	234908
32	9.8800	76528	741072	1	41678	681786
31	9.8799	34850	059286	1	41691	144835
41 30	9.8797	93158	914451	.0001	41703	624064
29	9.8796	51455	290387	1	41716	119481
28	9.8795	09739	170906	1	41728	631089
27	9.8793	68010	539817	1	41741	158898
26	9.8792	26269	380919	1	41753	702914
41 25	9.8790	84515	678005	.0001	41766	263144
24	9.8789	42749	414861	1	41778	839592
23	9.8788	00970	575269	1	41791	432270
22	9.8786	59179	142999	1	41804	041179
21	9.8785	17375	101820	1	41816	666331
41 20	9.8783	75558	435489	.0001	41829	307729

## Log Tangents

c	log. tan.			$\Delta^1$		
41 20	9.8783	75558	435489	.0001	41829	307729
19	9.8782	33729	127760	1	41841	965382
18	9.8780	91887	162378	1	41854	639297
17	9.8779	50032	523081	1	41867	329479
16	9.8778	08165	193602	1	41880	035936
41 15	9.8776	66285	157666	.0001	41892	758675
14	9.8775	24392	398991	1	41905	497703
13	9.8773	82486	901288	1	41918	253026
12	9.8772	40568	648262	1	41931	024653
11	9.8770	98637	623609	1	41943	812588
41 10	9.8769	56693	811021	.0001	41956	616840
09	9.8768	14737	194181	1	41969	437415
08	9.8766	72767	756766	1	41982	274321
07	9.8765	30785	482445	1	41995	127563
06	9.8763	88790	354882	1	42007	997151
41 05	9.8762	46782	357731	.0001	42020	883088
04	9.8761	04761	474643	1	42033	785386
03	9.8759	62727	689257	1	42046	704047
02	9.8758	20680	985210	1	42059	639081
01	9.8756	78621	346129	1	42072	590494
41 00	9.8755	36548	755635	.0001	42085	558293
40 99	9.8753	94463	197342	1	42098	542487
98	9.8752	52364	654855	1	42111	543080
97	9.8751	10253	111775	1	42124	560081
96	9.8749	68128	551694	1	42137	593496
40 95	9.8748	25990	958198	.0001	42150	643333
94	9.8746	83840	314865	1	42163	709599
93	9.8745	41676	605266	1	42176	792300
92	9.8743	99499	812966	1	42189	891445
91	9.8742	57309	921521	1	42203	007040
40 90	9.8741	15106	914481	.0001	42216	139092
89	9.8739	72890	775389	1	42229	287608
88	9.8738	30661	487781	1	42242	452596
87	9.8736	88419	035185	1	42255	634063
86	9.8735	46163	401122	1	42268	832015
40 85	9.8734	03894	569107	.0001	42282	046461
84	9.8732	61612	522646	1	42295	277407
83	9.8731	19317	245239	1	42308	524861
82	9.8729	77008	720378	1	42321	788829
81	9.8728	34686	931549	1	42335	069319
40 80	9.8726	92351	862230	.0001	42348	366339

## Log Tangents

c	log. tan.			$\Delta^1$		
40 80	9.8726	92351	862230	.0001	42348	366339
79	9.8725	50003	495891	1	42361	679895
78	9.8724	07641	815996	1	42375	009995
77	9.8722	65266	806001	1	42388	356646
76	9.8721	22878	449355	1	42401	719855
40 75	9.8719	80476	729500	.0001	42415	099630
74	9.8718	38061	629870	1	42428	495978
73	9.8716	95633	133892	1	42441	908906
72	9.8715	53191	224986	1	42455	338422
71	9.8714	10735	886564	1	42468	784533
40 70	9.8712	68267	102031	.0001	42482	247246
69	9.8711	25784	854785	1	42495	726568
68	9.8709	83289	128217	1	42509	222509
67	9.8708	40779	905708	1	42522	735072
66	9.8706	98257	170636	1	42536	264269
40 65	9.8705	55720	906367	.0001	42549	810104
64	9.8704	13171	096263	1	42563	372586
63	9.8702	70607	723677	1	42576	951722
62	9.8701	28030	771955	1	42590	547519
61	9.8699	85440	224436	1	42604	159986
40 60	9.8698	42836	064450	.0001	42617	789130
59	9.8697	00218	275320	1	42631	434956
58	9.8695	57586	840364	1	42645	097474
57	9.8694	14941	742890	1	42658	776692
56	9.8692	72282	966198	1	42672	472615
40 55	9.8691	29610	493583	.0001	42686	185253
54	9.8689	86924	308330	1	42699	914612
53	9.8688	44224	393718	1	42713	660700
52	9.8687	01510	733018	1	42727	423524
51	9.8685	58783	309494	1	42741	203093
40 50	9.8684	16042	106401	.0001	42754	999413
49	9.8682	73287	106988	1	42768	812492
48	9.8681	30518	294496	1	42782	642339
47	9.8679	87735	652157	1	42796	488960
46	9.8678	44939	163197	1	42810	352362
40 45	9.8677	02128	810835	.0001	42824	232555
44	9.8675	59304	578280	1	42838	129545
43	9.8674	16466	448735	1	42852	043339
42	9.8672	73614	405396	1	42865	973947
41	9.8671	30748	431449	1	42879	921374
40 40	9.8669	87868	510075	.0001	42893	885630

## Log Tangents

c	log. tan.	$\Delta^1$
40 40	9.8669 87868 510075	.0001 42893 885630
39	9.8668 44974 624445	1 42907 866721
38	9.8667 02066 757724	1 42921 864656
37	9.8665 59144 893068	1 42935 879442
36	9.8664 16209 013626	1 42949 911086
40 35	9.8662 73259 102540	.0001 42963 959597
34	9.8661 30295 142943	1 42978 024982
33	9.8659 87317 117961	1 42992 107250
32	9.8658 44325 010711	1 43006 206407
31	9.8657 01318 804304	1 43020 322462
40 30	9.8655 58298 481842	.0001 43034 455421
29	9.8654 15264 026421	1 43048 605296
28	9.8652 72215 421125	1 43062 772089
27	9.8651 29152 649036	1 43076 955812
26	9.8649 86075 693224	1 43091 156473
40 25	9.8648 42984 536751	.0001 43105 374076
24	9.8646 99879 162675	1 43119 608633
23	9.8645 56759 554042	1 43133 860150
22	9.8644 13625 693892	1 43148 128635
21	9.8642 70477 565257	1 43162 414096
40 20	9.8641 27315 151161	.0001 43176 716541
19	9.8639 84138 434620	1 43191 035977
18	9.8638 40947 398643	1 43205 372414
17	9.8636 97742 026229	1 43219 725858
16	9.8635 54522 300371	1 43234 096318
40 15	9.8634 11288 204053	.0001 43248 483801
14	9.8632 68039 720252	1 43262 888316
13	9.8631 24776 831936	1 43277 309870
12	9.8629 81499 522066	1 43291 748473
11	9.8628 38207 773593	1 43306 204129
40 10	9.8626 94901 569464	.0001 43320 676851
09	9.8625 51580 892613	1 43335 166644
08	9.8624 08245 725969	1 43349 673516
07	9.8622 64896 052453	1 43364 197476
06	9.8621 21531 854977	1 43378 738531
40 05	9.8619 78153 116446	.0001 43393 296691
04	9.8618 34759 819755	1 43407 871962
03	9.8616 91351 947793	1 43422 464354
02	9.8615 47929 483439	1 43437 073873
01	9.8614 04492 409566	1 43451 700529
40 00	9.8612 61040 709037	.0001 43466 344329

## Log Tangents

c	log. tan.			$\Delta^1$		
40 00	9.8612	61040	709037	.0001	43466	344329
39 99	9.8611	17574	364708	1	43481	005282
98	9.8609	74093	359426	1	43495	683394
97	9.8608	30597	676032	1	43510	378677
96	9.8606	87087	297355	1	43525	091136
39 95	9.8605	43562	206219	.0001	43539	820779
94	9.8604	00022	385440	1	43554	567617
93	9.8602	56467	817823	1	43569	331657
92	9.8601	12898	486166	1	43584	112905
91	9.8599	69314	373261	1	43598	911372
39 90	9.8598	25715	461889	.0001	43613	727065
89	9.8596	82101	734824	1	43628	559993
88	9.8595	38473	174831	1	43643	410164
87	9.8593	94829	764667	1	43658	277585
86	9.8592	51171	487082	1	43673	162266
39 85	9.8591	07498	324816	.0001	43688	064215
84	9.8589	63810	260601	1	43702	983440
83	9.8588	20107	277161	1	43717	919948
82	9.8586	76389	357213	1	43732	873751
81	9.8585	32656	483462	1	43747	844853
39 80	9.8583	88908	638609	.0001	43762	833265
79	9.8582	45145	805344	1	43777	838996
78	9.8581	01367	966348	1	43792	862051
77	9.8579	57575	104297	1	43807	902441
76	9.8578	13767	201856	1	43822	960176
39 75	9.8576	69944	241680	.0001	43838	035260
74	9.8575	26106	206420	1	43853	127705
73	9.8573	82253	078715	1	43868	237517
72	9.8572	38384	841198	1	43883	364708
71	9.8570	94501	476490	1	43898	509282
39 70	9.8569	50602	967208	.0001	43913	671251
69	9.8568	06689	295957	1	43928	850621
68	9.8566	62760	445336	1	43944	047403
67	9.8565	18816	397933	1	43959	261603
66	9.8563	74857	136330	1	43974	493231
39 65	9.8562	30882	643099	.0001	43989	742295
64	9.8560	86892	900804	1	44005	008805
63	9.8559	42887	891999	1	44020	292767
62	9.8557	98867	599232	1	44035	594191
61	9.8556	54832	005041	1	44050	913086
39 60	9.8555	10781	091955	.0001	44066	249461

## Log Tangents

c	log. tan.			$\Delta^1$		
39 60	9.8555	10781	091955	.0001	44066	249461
59	9.8553	66714	842494	1	44081	603322
58	9.8552	22633	239172	1	44096	974680
57	9.8550	78536	264492	1	44112	363543
56	9.8549	34423	900949	1	44127	769920
39 55	9.8547	90296	131029	.0001	44143	193819
54	9.8546	46152	937210	1	44158	635249
53	9.8545	01994	301961	1	44174	094218
52	9.8543	57820	207743	1	44189	570736
51	9.8542	13630	637007	1	44205	064811
39 50	9.8540	69425	572196	.0001	44220	576452
49	9.8539	25204	995744	1	44236	105667
48	9.8537	80968	890077	1	44251	652466
47	9.8536	36717	237611	1	44267	216855
46	9.8534	92450	020756	1	44282	798847
39 45	9.8533	48167	221909	.0001	44298	398448
44	9.8532	03868	823461	1	44314	015667
43	9.8530	59554	807794	1	44329	650513
42	9.8529	15225	157281	1	44345	302995
41	9.8527	70879	854286	1	44360	973121
39 40	9.8526	26518	881165	.0001	44376	660903
39	9.8524	82142	220262	1	44392	366345
38	9.8523	37749	853917	1	44408	089460
37	9.8521	93341	764457	1	44423	830254
36	9.8520	48917	934203	1	44439	588738
39 35	9.8519	04478	345465	.0001	44455	364919
34	9.8517	60022	980546	1	44471	158808
33	9.8516	15551	821738	1	44486	970413
32	9.8514	71064	851325	1	44502	799741
31	9.8513	26562	051584	1	44518	646805
39 30	9.8511	82043	404779	.0001	44534	511610
29	9.8510	37508	893169	1	44550	394168
28	9.8508	92958	499001	1	44566	294485
27	9.8507	48392	204516	1	44582	212574
26	9.8506	03809	991942	1	44598	148439
39 25	9.8504	59211	843503	.0001	44614	102094
24	9.8503	14597	741409	1	44630	073544
23	9.8501	69967	667865	1	44646	062801
22	9.8500	25321	605064	1	44662	069873
21	9.8498	80659	535191	1	44678	094768
39 20	9.8497	35981	440423	.0001	44694	137496

## Log Tangents

c	log. tan.			$\Delta^1$
39 20	9.8497	35981	440423	.0001 44694 137496
19	9.8495	91287	302927	1 44710 198067
18	9.8494	46577	104860	1 44726 276488
17	9.8493	01850	828372	1 44742 372771
16	9.8491	57108	455601	1 44758 486922
39 15	9.8490	12349	968679	.0001 44774 618953
14	9.8488	67575	349726	1 44790 768870
13	9.8487	22784	580856	1 44806 936686
12	9.8485	77977	644170	1 44823 122407
11	9.8484	33154	521763	1 44839 326043
39 10	9.8482	88315	195720	.0001 44855 547605
09	9.8481	43459	648115	1 44871 787099
08	9.8479	98587	861016	1 44888 044538
07	9.8478	53699	816478	1 44904 319928
06	9.8477	08795	496550	1 44920 613280
39 05	9.8475	63874	883270	.0001 44936 924602
04	9.8474	18937	958668	1 44953 253906
03	9.8472	73984	704762	1 44969 601197
02	9.8471	29015	103565	1 44985 966489
01	9.8469	84029	137076	1 45002 349788
39 00	9.8468	39026	787288	.0001 45018 751105
38 99	9.8466	94008	036183	1 45035 170447
98	9.8465	48972	865736	1 45051 607827
97	9.8464	03921	257909	1 45068 063253
96	9.8462	58853	194656	1 45084 536732
38 95	9.8461	13768	657924	.0001 45101 028276
94	9.8459	68667	629648	1 45117 537894
93	9.8458	23550	091754	1 45134 065595
92	9.8456	78416	026159	1 45150 611388
91	9.8455	33265	414771	1 45167 175284
38 90	9.8453	88098	239487	.0001 45183 757292
89	9.8452	42914	482195	1 45200 357419
88	9.8450	97714	124776	1 45216 975679
87	9.8449	52497	149097	1 45233 612077
86	9.8448	07263	537020	1 45250 266625
38 85	9.8446	62013	270395	.0001 45266 939332
84	9.8445	16746	331063	1 45283 630208
83	9.8443	71462	700855	1 45300 339262
82	9.8442	26162	361593	1 45317 066504
81	9.8440	80845	295089	1 45333 811942
38 80	9.8439	35511	483147	.0001 45350 575589

## Log Tangents

c	log. tan.			$\Delta^1$
38 80	9.8439	35511	483147	.0001 45350 575589
79	9.8437	90160	907558	1 45367 357451
78	9.8436	44793	550107	1 45384 157540
77	9.8434	99409	392567	1 45400 975863
76	9.8433	54008	416704	1 45417 812434
38 75	9.8432	08590	604270	.0001 45434 667259
74	9.8430	63155	937011	1 45451 540348
73	9.8429	17704	396663	1 45468 431712
72	9.8427	72235	964951	1 45485 341361
71	9.8426	26750	623590	1 45502 269302
38 70	9.8424	81248	354288	.0001 45519 215548
69	9.8423	35729	138740	1 45536 180108
68	9.8421	90192	958632	1 45553 162989
67	9.8420	44639	795643	1 45570 164205
66	9.8418	99069	631438	1 45587 183762
38 65	9.8417	53482	447676	.0001 45604 221672
64	9.8416	07878	226004	1 45621 277945
63	9.8414	62256	948059	1 45638 352589
62	9.8413	16618	595470	1 45655 445615
61	9.8411	70963	149855	1 45672 557033
38 60	9.8410	25290	592822	.0001 45689 686853
59	9.8408	79600	905969	1 45706 835085
58	9.8407	33894	070884	1 45724 001736
57	9.8405	88170	069148	1 45741 186821
56	9.8404	42428	882327	1 45758 390346
38 55	9.8402	96670	491981	.0001 45775 612322
54	9.8401	50894	879659	1 45792 852759
53	9.8400	05102	026900	1 45810 111667
52	9.8398	59291	915233	1 45827 389056
51	9.8397	13464	526177	1 45844 684937
38 50	9.8395	67619	841240	.0001 45861 999317
49	9.8394	21757	841923	1 45879 332210
48	9.8392	75878	509713	1 45896 683623
47	9.8391	29981	826090	1 45914 053567
46	9.8389	84067	772523	1 45931 442052
38 45	9.8388	38136	330471	.0001 45948 849088
44	9.8386	92187	481383	1 45966 274686
43	9.8385	46221	206697	1 45983 718855
42	9.8384	00237	487842	1 46001 181605
41	9.8382	54236	306237	1 46018 662946
38 40	9.8381	08217	643291	.0001 46036 162890



## Log Tangents

c	log. tan.			$\Delta^1$
38 40	9.8381	08217	643291	.0001 46036 162890
39	9.8379	62181	480401	1 46053 681446
38	9.8378	16127	798955	1 46071 218622
37	9.8376	70056	580333	1 46088 774431
36	9.8375	23967	805902	1 46106 348884
38 35	9.8373	77861	457018	.0001 46123 941987
34	9.8372	31737	515031	1 46141 553754
33	9.8370	85595	961277	1 46159 184193
32	9.8369	39436	777084	1 46176 833317
31	9.8367	93259	943767	1 46194 501133
38 30	9.8366	47065	442634	.0001 46212 187653
29	9.8365	00853	254981	1 46229 892887
28	9.8363	54623	362094	1 46247 616845
27	9.8362	08375	745249	1 46265 359538
26	9.8360	62110	385711	1 46283 120976
38 25	9.8359	15827	264735	.0001 46300 901169
24	9.8357	69526	363566	1 46318 700128
23	9.8356	23207	663438	1 46336 517862
22	9.8354	76871	145576	1 46354 354383
21	9.8353	30516	791193	1 46372 209701
38 20	9.8351	84144	581492	.0001 46390 083826
19	9.8350	37754	497666	1 46407 976768
18	9.8348	91346	520898	1 46425 888539
17	9.8347	44920	632359	1 46443 819147
16	9.8345	98476	813212	1 46461 768605
38 15	9.8344	52015	044607	.0001 46479 736922
14	9.8343	05535	307685	1 46497 724109
13	9.8341	59037	583576	1 46515 730176
12	9.8340	12521	853400	1 46533 755134
11	9.8338	65988	098266	1 46551 798994
38 10	9.8337	19436	299272	.0001 46569 861766
09	9.8335	72866	437506	1 46587 943459
08	9.8334	26278	494047	1 46606 044087
07	9.8332	79672	449960	1 46624 163658
06	9.8331	33048	286302	1 46642 302182
38 05	9.8329	86405	984120	.0001 46660 459673
04	9.8328	39745	524447	1 46678 636138
03	9.8326	93066	888309	1 46696 831590
02	9.8325	46370	056719	1 46715 046039
01	9.8323	99655	010680	1 46733 279495
38 00	9.8322	52921	731185	.0001 46751 531969

## Log Tangents

c	log. tan.			$\Delta^1$		
38 00	9.8322	52921	731185	.0001	46751	531969
37 99	9.8321	06170	199216	1	46769	803472
98	9.8319	59400	395744	1	46788	094015
97	9.8318	12612	301729	1	46806	403608
96	9.8316	65805	898121	1	46824	732262
37 95	9.8315	18981	165859	.0001	46843	079988
94	9.8313	72138	085871	1	46861	446797
93	9.8312	25276	639074	1	46879	832699
92	9.8310	78396	806375	1	46898	237706
91	9.8309	31498	568669	1	46916	661826
37 90	9.8307	84581	906843	.0001	46935	105074
89	9.8306	37646	801769	1	46953	567458
88	9.8304	90693	234311	1	46972	048989
87	9.8303	43721	185322	1	46990	549679
86	9.8301	96730	635643	1	47009	069539
37 85	9.8300	49721	566104	.0001	47027	608577
84	9.8299	02693	957527	1	47046	166808
83	9.8297	55647	790719	1	47064	744241
82	9.8296	08583	046478	1	47083	340887
81	9.8294	61499	705591	1	47101	956756
37 80	9.8293	14397	748835	.0001	47120	591861
79	9.8291	67277	156974	1	47139	246211
78	9.8290	20137	910763	1	47157	919819
77	9.8288	72979	990944	1	47176	612694
76	9.8287	25803	378250	1	47195	324849
37 75	9.8285	78608	053401	.0001	47214	056293
74	9.8284	31393	997108	1	47232	807039
73	9.8282	84161	190069	1	47251	577097
72	9.8281	36909	612972	1	47270	366478
71	9.8279	89639	246494	1	47289	175193
37 70	9.8278	42350	071301	.0001	47308	003254
69	9.8276	95042	068047	1	47326	850673
68	9.8275	47715	217374	1	47345	717457
67	9.8274	00369	499917	1	47364	603622
66	9.8272	53004	896295	1	47383	509177
37 65	9.8271	05621	387118	.0001	47402	434133
64	9.8269	58218	952985	1	47421	378501
63	9.8268	10797	574484	1	47440	342294
62	9.8266	63357	232190	1	47459	325521
61	9.8265	15897	906669	1	47478	328195
37 60	9.8263	68419	578474	.0001	47497	350326

## Log Tangents

c	log. tan.			$\Delta^1$		
37 60	9.8263	68419	578474	.0001	47497	350326
59	9.8262	20922	228148	1	47516	391926
58	9.8260	73405	836222	1	47535	453006
57	9.8259	25870	383216	1	47554	533578
56	9.8257	78315	849638	1	47573	633652
37 55	9.8256	30742	215986	.0001	47592	753241
54	9.8254	83149	462745	1	47611	892355
53	9.8253	35537	570390	1	47631	051006
52	9.8251	87906	519384	1	47650	229205
51	9.8250	40256	290179	1	47669	426964
37 50	9.8248	92586	863215	.0001	47688	644294
49	9.8247	44898	218921	1	47707	881207
48	9.8245	97190	337714	1	47727	137713
47	9.8244	49463	200001	1	47746	413824
46	9.8243	01716	786177	1	47765	709554
37 45	9.8241	53951	076623	.0001	47785	024911
44	9.8240	06166	051712	1	47804	359908
43	9.8238	58361	691804	1	47823	714556
42	9.8237	10537	977248	1	47843	088869
41	9.8235	62694	888379	1	47862	482854
37 40	9.8234	14832	405525	.0001	47881	896527
39	9.8232	66950	508998	1	47901	329897
38	9.8231	19049	179101	1	47920	782976
37	9.8229	71128	396125	1	47940	255776
36	9.8228	23188	140349	1	47959	748309
37 35	9.8226	75228	392040	.0001	47979	260586
34	9.8225	27249	131454	1	47998	792620
33	9.8223	79250	338834	1	48018	344419
32	9.8222	31231	994415	1	48037	916000
31	9.8220	83194	078415	1	48057	507370
37 30	9.8219	35136	571045	.0001	48077	118544
29	9.8217	87059	452501	1	48096	749532
28	9.8216	38962	702969	1	48116	400345
27	9.8214	90846	302624	1	48136	070998
26	9.8213	42710	231626	1	48155	761500
37 25	9.8211	94554	470126	.0001	48175	471863
24	9.8210	46378	998263	1	48195	202100
23	9.8208	98183	796163	1	48214	952222
22	9.8207	49968	843941	1	48234	722240
21	9.8206	01734	121701	1	48254	512169
37 20	9.8204	53479	609532	.0001	48274	322018

## Log Tangents

c	log. tan.			$\Delta^1$		
37 20	9.8204	53479	609532	.0001	48274	322018
19	9.8203	05205	287514	1	48294	151799
18	9.8201	56911	135715	1	48314	001526
17	9.8200	08597	134189	1	48333	871208
16	9.8198	60263	262981	1	48353	760859
37 15	9.8197	11909	502122	.0001	48373	670491
14	9.8195	63535	831631	1	48393	600115
13	9.8194	15142	231516	1	48413	549744
12	9.8192	66728	681772	1	48433	519389
11	9.8191	18295	162383	1	48453	509062
37 10	9.8189	69841	653321	.0001	48473	518776
09	9.8188	21368	134545	1	48493	548543
08	9.8186	72874	586002	1	48513	598374
07	9.8185	24360	987628	1	48533	668281
06	9.8183	75827	319347	1	48553	758279
37 05	9.8182	27273	561068	.0001	48573	868376
04	9.8180	78699	692692	1	48593	998586
03	9.8179	30105	694106	1	48614	148923
02	9.8177	81491	545183	1	48634	319396
01	9.8176	32857	225787	1	48654	510018
37 00	9.8174	84202	715769	.0001	48674	720804
36 99	9.8173	35527	994965	1	48694	951762
98	9.8171	86833	043203	1	48715	202907
97	9.8170	38117	840296	1	48735	474250
96	9.8168	89382	366046	1	48755	765804
36 95	9.8167	40626	600242	.0001	48776	077581
94	9.8165	91850	522661	1	48796	409594
93	9.8164	43054	113067	1	48816	761854
92	9.8162	94237	351213	1	48837	134373
91	9.8161	45400	216840	1	48857	527166
36 90	9.8159	96542	689674	.0001	48877	940242
89	9.8158	47664	749432	1	48898	373617
88	9.8156	98766	375815	1	48918	827300
87	9.8155	49847	548515	1	48939	301304
86	9.8154	00908	247211	1	48959	795644
36 85	9.8152	51948	451567	.0001	48980	310331
84	9.8151	02968	141236	1	49000	845375
83	9.8149	53967	295861	1	49021	400792
82	9.8148	04945	895069	1	49041	976593
81	9.8146	55903	918476	1	49062	572791
36 80	9.8145	06841	345685	.0001	49083	189397

## Log Tangents

c	log. tan.			$\Delta^1$		
36 80	9.8145	06841	345685	.0001	49083	189397
79	9.8143	57758	156288	1	49103	826425
78	9.8142	08654	329863	1	49124	483889
77	9.8140	59529	845974	1	49145	161797
76	9.8139	10384	684177	1	49165	860167
36 75	9.8137	61218	824010	.0001	49186	579007
74	9.8136	12032	245003	1	49207	318332
73	9.8134	62824	926671	1	49228	078156
72	9.8133	13596	848515	1	49248	858488
71	9.8131	64347	990027	1	49269	659343
36 70	9.8130	15078	330684	.0001	49290	480734
69	9.8128	65787	849950	1	49311	322672
68	9.8127	16476	527278	1	49332	185172
67	9.8125	67144	342106	1	49353	068244
66	9.8124	17791	273862	1	49373	971903
36 65	9.8122	68417	301959	.0001	49394	896161
64	9.8121	19022	405798	1	49415	841030
63	9.8119	69606	564768	1	49436	806525
62	9.8118	20169	758243	1	49457	792656
61	9.8116	70711	965587	1	49478	799438
36 60	9.8115	21233	166149	.0001	49499	826883
59	9.8113	71733	339266	1	49520	875004
58	9.8112	22212	464262	1	49541	943813
57	9.8110	72670	520449	1	49563	033325
56	9.8109	23107	487124	1	49584	143552
36 55	9.8107	73523	343572	.0001	49605	274505
54	9.8106	23918	069067	1	49626	426199
53	9.8104	74291	642868	1	49647	598647
52	9.8103	24644	044221	1	49668	791862
51	9.8101	74975	252359	1	49690	005856
36 50	9.8100	25285	246503	.0001	49711	240642
49	9.8098	75574	005861	1	49732	496235
48	9.8097	25841	509626	1	49753	772645
47	9.8095	76087	736981	1	49775	069888
46	9.8094	26312	667093	1	49796	387976
36 45	9.8092	76516	279117	.0001	49817	726921
44	9.8091	26698	552196	1	49839	086738
43	9.8089	76859	465458	1	49860	467439
42	9.8088	26998	998019	1	49881	869037
41	9.8086	77117	128982	1	49903	291545
36 40	9.8085	27213	837437	.0001	49924	734978

## Log Tangents

c	log. tan.			$\Delta^1$		
36 40	9.8085	27213	837437	.0001	49924	734978
39	9.8083	77289	102459	1	49946	199348
38	9.8082	27342	903111	1	49967	684668
37	9.8080	77375	218443	1	49989	190950
36	9.8079	27386	027493	1	50010	718211
36 35	9.8077	77375	309282	.0001	50032	266461
34	9.8076	27343	042821	1	50053	835714
33	9.8074	77289	207107	1	50075	425984
32	9.8073	27213	781123	1	50097	037284
31	9.8071	77116	743839	1	50118	669628
36 30	9.8070	26998	074211	.0001	50140	323027
29	9.8068	76857	751184	1	50161	997498
28	9.8067	26695	753686	1	50183	693051
27	9.8065	76512	060635	1	50205	409701
26	9.8064	26306	650934	1	50227	147462
36 25	9.8062	76079	503472	.0001	50248	906347
24	9.8061	25830	597125	1	50270	686369
23	9.8059	75559	910756	1	50292	487542
22	9.8058	25267	423214	1	50314	309879
21	9.8056	74953	113335	1	50336	153394
36 20	9.8055	24616	959941	.0001	50358	018099
19	9.8053	74258	941842	1	50379	904012
18	9.8052	23879	037830	1	50401	811140
17	9.8050	73477	226690	1	50423	739503
16	9.8049	23053	487187	1	50445	689110
36 15	9.8047	72607	798077	.0001	50467	659977
14	9.8046	22140	138100	1	50489	652117
13	9.8044	71650	485983	1	50511	665544
12	9.8043	21138	820439	1	50533	700271
11	9.8041	70605	120168	1	50555	756312
36 10	9.8040	20049	363856	.0001	50577	833681
09	9.8038	69471	530175	1	50599	932391
08	9.8037	18871	597784	1	50622	052457
07	9.8035	68249	545327	1	50644	193893
06	9.8034	17605	351434	1	50666	356710
36 05	9.8032	66938	994724	.0001	50688	540924
04	9.8031	16250	453800	1	50710	746550
03	9.8029	65539	707250	1	50732	973599
02	9.8028	14806	733651	1	50755	222087
01	9.8026	64051	511564	1	50777	492027
36 00	9.8025	13274	019537	.0001	50799	783432

## Log Tangents

c	log. tan.			$\Delta^1$		
36 00	9.8025	13274	019537	.0001	50799	783432
35 99	9.8023	62474	236105	1	50822	096319
98	9.8022	11652	139786	1	50844	430699
97	9.8020	60807	709087	1	50866	786586
96	9.8019	09940	922501	1	50889	163996
35 95	9.8017	59051	758505	.0001	50911	562941
94	9.8016	08140	195564	1	50933	983437
93	9.8014	57206	212127	1	50956	425496
92	9.8013	06249	786631	1	50978	889133
91	9.8011	55270	897498	1	51001	374362
35 90	9.8010	04269	523136	.0001	51023	881198
89	9.8008	53245	641938	1	51046	409653
88	9.8007	02199	232285	1	51068	959743
87	9.8005	51130	272542	1	51091	531481
86	9.8004	00038	741061	1	51114	124883
35 85	9.8002	48924	616178	.0001	51136	739960
84	9.8000	97787	876218	1	51159	376729
83	9.7999	46628	499489	1	51182	035203
82	9.7997	95446	464286	1	51204	715397
81	9.7996	44241	748889	1	51227	417324
35 80	9.7994	93014	331565	.0001	51250	141000
79	9.7993	41764	190565	1	51272	886437
78	9.7991	90491	304128	1	51295	653651
77	9.7990	39195	650477	1	51318	442656
76	9.7988	87877	207821	1	51341	253467
35 75	9.7987	36535	954354	.0001	51364	086097
74	9.7985	85171	868257	1	51386	940561
73	9.7984	33784	927696	1	51409	816874
72	9.7982	82375	110822	1	51432	715049
71	9.7981	30942	395773	1	51455	635102
35 70	9.7979	79486	760671	.0001	51478	577046
69	9.7978	28008	183625	1	51501	540897
68	9.7976	76506	642728	1	51524	526669
67	9.7975	24982	116059	1	51547	534375
66	9.7973	73434	581684	1	51570	564032
35 65	9.7972	21864	017652	.0001	51593	615653
64	9.7970	70270	401999	1	51616	689253
63	9.7969	18653	712746	1	51639	784846
62	9.7967	67013	927900	1	51662	902447
61	9.7966	15351	025453	1	51686	042072
35 60	9.7964	63664	983381	.0001	51709	203733

## Log Tangents

c	log. tan.			$\Delta^1$		
35 60	9.7964	63664	983381	.0001	51709	203733
59	9.7963	11955	779648	1	51732	387448
58	9.7961	60223	392200	1	51755	593227
57	9.7960	08467	798973	1	51778	821090
56	9.7958	56688	977883	1	51802	071048
35 55	9.7957	04886	906835	.0001	51825	343117
54	9.7955	53061	563718	1	51848	637311
53	9.7954	01212	926407	1	51871	953648
52	9.7952	49340	972759	1	51895	292138
51	9.7950	97445	680621	1	51918	652798
35 50	9.7949	45527	027823	.0001	51942	035645
49	9.7947	93584	992178	1	51965	440690
48	9.7946	41619	551488	1	51988	867950
47	9.7944	89630	683538	1	52012	317440
46	9.7943	37618	366098	1	52035	789175
35 45	9.7941	85582	576923	.0001	52059	283169
44	9.7940	33523	293754	1	52082	799437
43	9.7938	81440	494317	1	52106	337995
42	9.7937	29334	156322	1	52129	898857
41	9.7935	77204	257465	1	52153	482039
35 40	9.7934	25050	775426	.0001	52177	087555
39	9.7932	72873	687871	1	52200	715420
38	9.7931	20672	972451	1	52224	365651
37	9.7929	68448	606800	1	52248	038261
36	9.7928	16200	568539	1	52271	733265
35 35	9.7926	63928	835274	.0001	52295	450681
34	9.7925	11633	384593	1	52319	190520
33	9.7923	59314	194073	1	52342	952800
32	9.7922	06971	241273	1	52366	737536
31	9.7920	54604	503737	1	52390	544742
35 30	9.7919	02213	958995	.0001	52414	374434
29	9.7917	49799	584561	1	52438	226628
28	9.7915	97361	357933	1	52462	101338
27	9.7914	44899	256595	1	52485	998579
26	9.7912	92413	258016	1	52509	918368
35 25	9.7911	39903	339648	.0001	52533	860719
24	9.7909	87369	478929	1	52557	825648
23	9.7908	34811	653281	1	52581	813170
22	9.7906	82229	840111	1	52605	823301
21	9.7905	29624	016810	1	52629	856055
35 20	9.7903	76994	160755	.0001	52653	911449



## Log Tangents

c	log. tan.			$\Delta^1$		
35 20	9.7903	76994	160755	.0001	52653	911449
19	9.7902	24340	249306	1	52677	989498
18	9.7900	71662	259808	1	52702	090216
17	9.7899	18960	169592	1	52726	213622
16	9.7897	66233	955970	1	52750	359727
35 15	9.7896	13483	596243	.0001	52774	528551
14	9.7894	60709	067692	1	52798	720106
13	9.7893	07910	347586	1	52822	934410
12	9.7891	55087	413176	1	52847	171476
11	9.7890	02240	241700	1	52871	431323
35 10	9.7888	49368	810377	.0001	52895	713964
09	9.7886	96473	096413	1	52920	019415
08	9.7885	43553	076998	1	52944	347693
07	9.7883	90608	729305	1	52968	698813
06	9.7882	37640	030492	1	52993	072790
35 05	9.7880	84646	957702	.0001	53017	469641
04	9.7879	31629	488061	1	53041	889380
03	9.7877	78587	598681	1	53066	332025
02	9.7876	25521	266656	1	53090	797591
01	9.7874	72430	469065	1	53115	286092
35 00	9.7873	19315	182973	.0001	53139	797546
34 99	9.7871	66175	385427	1	53164	331969
98	9.7870	13011	053458	1	53188	889375
97	9.7868	59822	164083	1	53213	469781
96	9.7867	06608	694302	1	53238	073204
34 95	9.7865	53370	621098	.0001	53262	699659
94	9.7864	00107	921439	1	53287	349160
93	9.7862	46820	572279	1	53312	021727
92	9.7860	93508	550552	1	53336	717372
91	9.7859	40171	833180	1	53361	436114
34 90	9.7857	86810	397066	.0001	53386	177968
89	9.7856	33424	219098	1	53410	942950
88	9.7854	80013	276148	1	53435	731075
87	9.7853	26577	545073	1	53460	542362
86	9.7851	73117	002711	1	53485	376823
34 85	9.7850	19631	625888	.0001	53510	234479
84	9.7848	66121	391409	1	53535	115342
83	9.7847	12586	276067	1	53560	019431
82	9.7845	59026	256636	1	53584	946760
81	9.7844	05441	309876	1	53609	897347
34 80	9.7842	51831	412529	.0001	53634	871208

## Log Tangents

c	log. tan.			$\Delta^1$		
34 80	9.7842	51831	412529	.0001	53634	871208
79	9.7840	98196	541321	1	53659	868358
78	9.7839	44536	672963	1	53684	888815
77	9.7837	90851	784148	1	53709	932594
76	9.7836	37141	851554	1	53734	999712
34 75	9.7834	83406	851842	.0001	53760	090185
74	9.7833	29646	761657	1	53785	204030
73	9.7831	75861	557627	1	53810	341263
72	9.7830	22051	216364	1	53835	501901
71	9.7828	68215	714463	1	53860	685958
34 70	9.7827	14355	028505	.0001	53885	893455
69	9.7825	60469	135050	1	53911	124405
68	9.7824	06558	010645	1	53936	378824
67	9.7822	52621	631821	1	53961	656732
66	9.7820	98659	975089	1	53986	958142
34 65	9.7819	44673	016947	.0001	54012	283073
64	9.7817	90660	733874	1	54037	631541
63	9.7816	36623	102333	1	54063	003561
62	9.7814	82560	098772	1	54088	399153
61	9.7813	28471	699619	1	54113	818330
34 60	9.7811	74357	881289	.0001	54139	261110
59	9.7810	20218	620179	1	54164	727512
58	9.7808	66053	892667	1	54190	217550
57	9.7807	11863	675117	1	54215	731241
56	9.7805	57647	943876	1	54241	268603
34 55	9.7804	03406	675273	.0001	54266	829652
54	9.7802	49139	845621	1	54292	414405
53	9.7800	94847	431216	1	54318	022879
52	9.7799	40529	408337	1	54343	655090
51	9.7797	86185	753247	1	54369	311056
34 50	9.7796	31816	442191	.0001	54394	990794
49	9.7794	77421	451397	1	54420	694320
48	9.7793	23000	757077	1	54446	421652
47	9.7791	68554	335425	1	54472	172806
46	9.7790	14082	162619	1	54497	947798
34 45	9.7788	59584	214821	.0001	54523	746649
44	9.7787	05060	468172	1	54549	569371
43	9.7785	50510	898801	1	54575	415986
42	9.7783	95935	482815	1	54601	286506
41	9.7782	41334	196309	1	54627	180953
34 40	9.7780	86707	015356	.0001	54653	099341

## Log Tangents

c	log. tan.			$\Delta^1$		
34 40	9.7780	86707	015356	.0001	54653	099341
39	9.7779	32053	916015	1	54679	041687
38	9.7777	77374	874328	1	54705	008011
37	9.7776	22669	866317	1	54730	998327
36	9.7774	67938	867990	1	54757	012655
34 35	9.7773	13181	855335	.0001	54783	051010
34	9.7771	58398	804325	1	54809	113410
33	9.7770	03589	690915	1	54835	199872
32	9.7768	48754	491043	1	54861	310416
31	9.7766	93893	180627	1	54887	445054
34 30	9.7765	39005	735573	.0001	54913	603810
29	9.7763	84092	131763	1	54939	786694
28	9.7762	29152	345069	1	54965	993731
27	9.7760	74186	351338	1	54992	224932
26	9.7759	19194	126406	1	55018	480318
34 25	9.7757	64175	646088	.0001	55044	759906
24	9.7756	09130	886182	1	55071	063713
23	9.7754	54059	822469	1	55097	391756
22	9.7752	98962	430713	1	55123	744054
21	9.7751	43838	686659	1	55150	120624
34 20	9.7749	88688	566035	.0001	55176	521482
19	9.7748	33512	044553	1	55202	946648
18	9.7746	78309	097905	1	55229	396139
17	9.7745	23079	701766	1	55255	869971
16	9.7743	67823	831795	1	55282	368164
34 15	9.7742	12541	463631	.0001	55308	890734
14	9.7740	57232	572897	1	55335	437699
13	9.7739	01897	135198	1	55362	009079
12	9.7737	46535	126119	1	55388	604888
11	9.7735	91146	521231	1	55415	225146
34 10	9.7734	35731	296085	.0001	55441	869872
09	9.7732	80289	426213	1	55468	539081
08	9.7731	24820	887132	1	55495	232792
07	9.7729	69325	654340	1	55521	951024
06	9.7728	13803	703316	1	55548	693794
34 05	9.7726	58255	009522	.0001	55575	461120
04	9.7725	02679	548402	1	55602	253020
03	9.7723	47077	295382	1	55629	069511
02	9.7721	91448	225871	1	55655	910614
01	9.7720	35792	315257	1	55682	776343
34 00	9.7718	80109	538914	.0001	55709	666718

## Log Tangents

c	log. tan.			$\Delta^1$		
34 00	9.7718	80109	538914	.0001	55709	666718
33 99	9.7717	24399	872196	1	55736	581759
98	9.7715	68663	290437	1	55763	521481
97	9.7714	12899	768956	1	55790	485904
96	9.7712	57109	283052	1	55817	475044
33 95	9.7711	01291	808008	.0001	55844	488923
94	9.7709	45447	319085	1	55871	527555
93	9.7707	89575	791530	1	55898	590962
92	9.7706	33677	200568	1	55925	679158
91	9.7704	77751	521410	1	55952	792166
33 90	9.7703	21798	729244	.0001	55979	930000
89	9.7701	65818	799244	1	56007	092682
88	9.7700	09811	706562	1	56034	280228
87	9.7698	53777	426334	1	56061	492656
86	9.7696	97715	933678	1	56088	729987
33 85	9.7695	41627	203691	.0001	56115	992237
84	9.7693	85511	211454	1	56143	279425
83	9.7692	29367	932029	1	56170	591570
82	9.7690	73197	340459	1	56197	928691
81	9.7689	16999	411768	1	56225	290804
33 80	9.7687	60774	120964	.0001	56252	677931
79	9.7686	04521	443033	1	56280	090088
78	9.7684	48241	352945	1	56307	527294
77	9.7682	91933	825651	1	56334	989569
76	9.7681	35598	836082	1	56362	476931
33 75	9.7679	79236	359151	.0001	56389	989396
74	9.7678	22846	369755	1	56417	526988
73	9.7676	66428	842767	1	56445	089721
72	9.7675	09983	753046	1	56472	677615
71	9.7673	53511	075431	1	56500	290691
33 70	9.7671	97010	784740	.0001	56527	928964
69	9.7670	40482	855776	1	56555	592457
68	9.7668	83927	263319	1	56583	281185
67	9.7667	27343	982134	1	56610	995169
66	9.7665	70732	986965	1	56638	734427
33 65	9.7664	14094	252538	.0001	56666	498979
64	9.7662	57427	753559	1	56694	288843
63	9.7661	00733	464716	1	56722	104039
62	9.7659	44011	360677	1	56749	944584
61	9.7657	87261	416093	1	56777	810498
33 60	9.7656	30483	605595	.0001	56805	701801

## Log Tangents

c	log. tan.			$\Delta^1$		
33 60	9.7656	30483	605595	.0001	56805	701801
59	9.7654	73677	903794	1	56833	618511
58	9.7653	16844	285283	1	56861	560648
57	9.7651	59982	724635	1	56889	528230
56	9.7650	03093	196405	1	56917	521276
33 55	9.7648	46175	675129	.0001	56945	539807
54	9.7646	89230	135322	1	56973	583840
53	9.7645	32256	551482	1	57001	653396
52	9.7643	75254	898086	1	57029	748492
51	9.7642	18225	149594	1	57057	869151
33 50	9.7640	61167	280443	.0001	57086	015387
49	9.7639	04081	265056	1	57114	187225
48	9.7637	46967	077831	1	57142	384680
47	9.7635	89824	693151	1	57170	607773
46	9.7634	32654	085378	1	57198	856525
33 45	9.7632	75455	228853	.0001	57227	130952
44	9.7631	18228	097901	1	57255	431075
43	9.7629	60972	666826	1	57283	756916
42	9.7628	03688	909910	1	57312	108489
41	9.7626	46376	801421	1	57340	485820
33 40	9.7624	89036	315601	.0001	57368	888922
39	9.7623	31667	426679	1	57397	317821
38	9.7621	74270	108858	1	57425	772530
37	9.7620	16844	336328	1	57454	253075
36	9.7618	59390	083253	1	57482	759472
33 35	9.7617	01907	323781	.0001	57511	291740
34	9.7615	44396	032041	1	57539	849901
33	9.7613	86856	182140	1	57568	433973
32	9.7612	29287	748167	1	57597	043978
31	9.7610	71690	704189	1	57625	679933
33 30	9.7609	14065	024256	.0001	57654	341860
29	9.7607	56410	682396	1	57683	029777
28	9.7605	98727	652619	1	57711	743705
27	9.7604	41015	908914	1	57740	483664
26	9.7602	83275	425250	1	57769	249674
33 25	9.7601	25506	175576	.0001	57798	041754
24	9.7599	67708	133822	1	57826	859924
23	9.7598	09881	273898	1	57855	704205
22	9.7596	52025	569693	1	57884	574616
21	9.7594	94140	995077	1	57913	471178
33 20	9.7593	36227	523899	.0001	57942	393911

## Log Tangents

c	log. tan.			$\Delta^1$		
33 20	9.7593	36227	523899	.0001	57942	393911
19	9.7591	78285	129988	1	57971	342833
18	9.7590	20313	787155	1	58000	317968
17	9.7588	62313	469187	1	58029	319332
16	9.7587	04284	149855	1	58058	346948
33 15	9.7585	46225	802907	.0001	58087	400835
14	9.7583	88138	402072	1	58116	481014
13	9.7582	30021	921058	1	58145	587504
12	9.7580	71876	333554	1	58174	720327
11	9.7579	13701	613227	1	58203	879502
33 10	9.7577	55497	733725	.0001	58233	065050
09	9.7575	97264	668675	1	58262	276990
08	9.7574	39002	391685	1	58291	515345
07	9.7572	80710	876340	1	58320	780132
06	9.7571	22390	096208	1	58350	071375
33 05	9.7569	64040	024833	.0001	58379	389092
04	9.7568	05660	635741	1	58408	733304
03	9.7566	47251	902437	1	58438	104032
02	9.7564	88813	798405	1	58467	501297
01	9.7563	30346	297108	1	58496	925119
33 00	9.7561	71849	371989	.0001	58526	375517
32 99	9.7560	13322	996472	1	58555	852515
98	9.7558	54767	143957	1	58585	356130
97	9.7556	96181	787827	1	58614	886386
96	9.7555	37566	901441	1	58644	443302
32 95	9.7553	78922	458139	.0001	58674	026899
94	9.7552	20248	431240	1	58703	637197
93	9.7550	61544	794043	1	58733	274218
92	9.7549	02811	519825	1	58762	937982
91	9.7547	44048	581843	1	58792	628511
32 90	9.7545	85255	953332	.0001	58822	345825
89	9.7544	26433	607507	1	58852	089944
88	9.7542	67581	517563	1	58881	860891
87	9.7541	08699	656672	1	58911	658685
86	9.7539	49787	997987	1	58941	483349
32 85	9.7537	90846	514638	.0001	58971	334902
84	9.7536	31875	179736	1	59001	213367
83	9.7534	72873	966369	1	59031	118763
82	9.7533	13842	847606	1	59061	051112
81	9.7531	54781	796494	1	59091	010437
32 80	9.7529	95690	786057	.0001	59120	996755

## Log Tangents

c	log. tan.			$\Delta^1$		
32 80	9.7529	95690	786057	.0001	59120	996755
79	9.7528	36569	789302	1	59151	010091
78	9.7526	77418	779211	1	59181	050466
77	9.7525	18237	728745	1	59211	117897
76	9.7523	59026	610848	1	59241	212412
32 75	9.7521	99785	398436	.0001	59271	334026
74	9.7520	40514	064410	1	59301	482763
73	9.7518	81212	581647	1	59331	658646
72	9.7517	21880	923001	1	59361	861694
71	9.7515	62519	061307	1	59392	091929
32 70	9.7514	03126	969378	.0001	59422	349373
69	9.7512	43704	620005	1	59452	634046
68	9.7510	84251	985959	1	59482	945972
67	9.7509	24769	039987	1	59513	285170
66	9.7507	65255	754817	1	59543	651663
32 65	9.7506	05712	103154	.0001	59574	045473
64	9.7504	46138	057681	1	59604	466619
63	9.7502	86533	591062	1	59634	915127
62	9.7501	26898	675935	1	59665	391014
61	9.7499	67233	284921	1	59695	894305
32 60	9.7498	07537	390616	.0001	59726	425021
59	9.7496	47810	965595	1	59756	983182
58	9.7494	88053	982413	1	59787	568812
57	9.7493	28266	413601	1	59818	181932
56	9.7491	68448	231669	1	59848	822564
32 55	9.7490	08599	409105	.0001	59879	490729
54	9.7488	48719	918376	1	59910	186450
53	9.7486	88809	731926	1	59940	909749
52	9.7485	28868	822177	1	59971	660647
51	9.7483	68897	161530	1	60002	439167
32 50	9.7482	08894	722363	.0001	60033	245330
49	9.7480	48861	477033	1	60064	079158
48	9.7478	88797	397875	1	60094	940675
47	9.7477	28702	457200	1	60125	829901
46	9.7475	68576	627299	1	60156	746859
32 45	9.7474	08419	880440	.0001	60187	691572
44	9.7472	48232	188868	1	60218	664060
43	9.7470	88013	524808	1	60249	664346
42	9.7469	27763	860462	1	60280	692455
41	9.7467	67483	168007	1	60311	748406
32 40	9.7466	07171	419601	.0001	60342	832221

## Log Tangents

c	log. tan.			$\Delta^1$		
32 40	9.7466	07171	419601	.0001	60342	832221
39	9.7464	46828	587380	1	60373	943926
38	9.7462	86454	643454	1	60405	083540
37	9.7461	26049	559914	1	60436	251086
36	9.7459	65613	308828	1	60467	446588
32 35	9.7458	05145	862240	.0001	60498	670067
34	9.7456	44647	192173	1	60529	921547
33	9.7454	84117	270626	1	60561	201047
32	9.7453	23556	069579	1	60592	508594
31	9.7451	62963	560985	1	60623	844208
32 30	9.7450	02339	716777	.0001	60655	207913
29	9.7448	41684	508864	1	60686	599729
28	9.7446	80997	909135	1	60718	019683
27	9.7445	20279	889452	1	60749	467793
26	9.7443	59530	421659	1	60780	944086
32 25	9.7441	98749	477573	.0001	60812	448582
24	9.7440	37937	028991	1	60843	981304
23	9.7438	77093	047687	1	60875	542276
22	9.7437	16217	505411	1	60907	131520
21	9.7435	55310	373891	1	60938	749059
32 20	9.7433	94371	624832	.0001	60970	394918
19	9.7432	33401	229914	1	61002	069115
18	9.7430	72399	160799	1	61033	771679
17	9.7429	11365	389120	1	61065	502628
16	9.7427	50299	886492	1	61097	261988
32 15	9.7425	89202	624504	.0001	61129	049781
14	9.7424	28073	574723	1	61160	866031
13	9.7422	66912	708692	1	61192	710760
12	9.7421	05719	997932	1	61224	583991
11	9.7419	44495	413941	1	61256	485748
32 10	9.7417	83238	928193	.0001	61288	416055
09	9.7416	21950	512138	1	61320	374934
08	9.7414	60630	137204	1	61352	362408
07	9.7412	99277	774796	1	61384	378501
06	9.7411	37893	396295	1	61416	423238
32 05	9.7409	76476	973057	.0001	61448	496638
04	9.7408	15028	476419	1	61480	598730
03	9.7406	53547	877689	1	61512	729532
02	9.7404	92035	148157	1	61544	889072
01	9.7403	30490	259085	1	61577	077371
32 00	9.7401	68913	181714	.0001	61609	294453



## Log Tangents

c	log. tan.			$\Delta^1$		
32 00	9.7401	68913	181714	.0001	61609	294453
31 99	9.7400	07303	887261	1	61641	540342
98	9.7398	45662	346919	1	61673	815061
97	9.7396	83988	531858	1	61706	118634
96	9.7395	22282	413224	1	61738	451085
31 95	9.7393	60543	962139	.0001	61770	812437
94	9.7391	98773	149702	1	61803	202715
93	9.7390	36969	946987	1	61835	621941
92	9.7388	75134	325046	1	61868	070140
91	9.7387	13266	254906	1	61900	547336
31 90	9.7385	51365	707570	.0001	61933	053551
89	9.7383	89432	654019	1	61965	588812
88	9.7382	27467	065207	1	61998	153141
87	9.7380	65468	912066	1	62030	746561
86	9.7379	03438	165505	1	62063	369098
31 85	9.7377	41374	796407	.0001	62096	020776
84	9.7375	79278	775631	1	62128	701617
83	9.7374	17150	074014	1	62161	411647
82	9.7372	54988	662367	1	62194	150889
81	9.7370	92794	511478	1	62226	919369
31 80	9.7369	30567	592109	.0001	62259	717109
79	9.7367	68307	875000	1	62292	544134
78	9.7366	06015	330866	1	62325	400469
77	9.7364	43689	930397	1	62358	286137
76	9.7362	81331	644260	1	62391	201163
31 75	9.7361	18940	443097	.0001	62424	145572
74	9.7359	56516	297525	1	62457	119387
73	9.7357	94059	178138	1	62490	122634
72	9.7356	31569	055504	1	62523	155336
71	9.7354	69045	900168	1	62556	217519
31 70	9.7353	06489	682649	.0001	62589	309205
69	9.7351	43900	373444	1	62622	430422
68	9.7349	81277	943022	1	62655	581191
67	9.7348	18622	361831	1	62688	761540
66	9.7346	55933	600291	1	62721	971492
31 65	9.7344	93211	628799	.0001	62755	211070
64	9.7343	30456	417729	1	62788	480302
63	9.7341	67667	937427	1	62821	779211
62	9.7340	04846	158216	1	62855	107822
61	9.7338	41991	050394	1	62888	466160
31 60	9.7336	79102	584234	.0001	62921	854250

## Log Tangents

c	log. tan.			$\Delta^1$		
31 60	9.7336	79102	584234	.0001	62921	854250
59	9.7335	16180	729984	1	62955	272115
58	9.7333	53225	457869	1	62988	719783
57	9.7331	90236	738086	1	63022	197277
56	9.7330	27214	540809	1	63055	704623
31 55	9.7328	64158	836186	.0001	63089	241845
54	9.7327	01069	594341	1	63122	808969
53	9.7325	37946	785372	1	63156	406019
52	9.7323	74790	379353	1	63190	033021
51	9.7322	11600	346332	1	63223	690000
31 50	9.7320	48376	656332	.0001	63257	376981
49	9.7318	85119	279351	1	63291	093990
48	9.7317	21828	185361	1	63324	841052
47	9.7315	58503	344309	1	63358	618190
46	9.7313	95144	726119	1	63392	425433
31 45	9.7312	31752	300686	.0001	63426	262804
44	9.7310	68326	037882	1	63460	130330
43	9.7309	04865	907552	1	63494	028034
42	9.7307	41371	879518	1	63527	955943
41	9.7305	77843	923575	1	63561	914084
31 40	9.7304	14282	009491	.0001	63595	902480
39	9.7302	50686	107011	1	63629	921158
38	9.7300	87056	185853	1	63663	970143
37	9.7299	23392	215710	1	63698	049460
36	9.7297	59694	166250	1	63732	159137
31 35	9.7295	95962	007113	.0001	63766	299197
34	9.7294	32195	707916	1	63800	469668
33	9.7292	68395	238248	1	63834	670575
32	9.7291	04560	567673	1	63868	901942
31	9.7289	40691	665731	1	63903	163798
31 30	9.7287	76788	501933	.0001	63937	456166
29	9.7286	12851	045767	1	63971	779075
28	9.7284	48879	266692	1	64006	132548
27	9.7282	84873	134144	1	64040	516612
26	9.7281	20832	617532	1	64074	931295
31 25	9.7279	56757	686237	.0001	64109	376619
24	9.7277	92648	309618	1	64143	852615
23	9.7276	28504	457003	1	64178	359304
22	9.7274	64326	097699	1	64212	896717
21	9.7273	00113	200982	1	64247	464876
31 20	9.7271	35865	736106	.0001	64282	063811

## Log Tangents

c	log. tan.			$\Delta^1$		
31 20	9.7271	35865	736106	.0001	64282	063811
19	9.7269	71583	672295	1	64316	693545
18	9.7268	07266	978750	1	64351	354107
17	9.7266	42915	624643	1	64386	045522
16	9.7264	78529	579121	1	64420	767816
31 15	9.7263	14108	811305	.0001	64455	521017
14	9.7261	49653	290288	1	64490	305149
13	9.7259	85162	985139	1	64525	120241
12	9.7258	20637	864898	1	64559	966319
11	9.7256	56077	898579	1	64594	843407
31 10	9.7254	91483	055172	.0001	64629	751536
09	9.7253	26853	303636	1	64664	690730
08	9.7251	62188	612906	1	64699	661014
07	9.7249	97488	951892	1	64734	662419
06	9.7248	32754	289473	1	64769	694969
31 05	9.7246	67984	594504	.0001	64804	758690
04	9.7245	03179	835814	1	64839	853612
03	9.7243	38339	982202	1	64874	979759
02	9.7241	73465	002443	1	64910	137158
01	9.7240	08554	865285	1	64945	325839
31 00	9.7238	43609	539446	.0001	64980	545824
30 99	9.7236	78628	993622	1	65015	797146
98	9.7235	13613	196476	1	65051	079826
97	9.7233	48562	116650	1	65086	393895
96	9.7231	83475	722755	1	65121	739380
30 95	9.7230	18353	983375	.0001	65157	116306
94	9.7228	53196	867069	1	65192	524702
93	9.7226	88004	342367	1	65227	964595
92	9.7225	22776	377772	1	65263	436011
91	9.7223	57512	941761	1	65298	938979
30 90	9.7221	92214	002782	.0001	65334	473525
89	9.7220	26879	529257	1	65370	039677
88	9.7218	61509	489580	1	65405	637463
87	9.7216	96103	852117	1	65441	266910
86	9.7215	30662	585207	1	65476	928045
30 85	9.7213	65185	657162	.0001	65512	620896
84	9.7211	99673	036266	1	65548	345490
83	9.7210	34124	690776	1	65584	101855
82	9.7208	68540	588921	1	65619	890020
81	9.7207	02920	698901	1	65655	710010
30 80	9.7205	37264	988891	.0001	65691	561855

## Log Tangents

c	log. tan.			$\Delta^1$		
30 80	9.7205	37264	988891	.0001	65691	561855
79	9.7203	71573	427036	1	65727	445582
78	9.7202	05845	981454	1	65763	361219
77	9.7200	40082	620235	1	65799	308792
76	9.7198	74283	311443	1	65835	288332
30 75	9.7197	08448	023111	.0001	65871	299865
74	9.7195	42576	723246	1	65907	343419
73	9.7193	76669	379827	1	65943	419023
72	9.7192	10725	960804	1	65979	526703
71	9.7190	44746	434101	1	66015	666490
30 70	9.7188	78730	767611	.0001	66051	838410
69	9.7187	12678	929201	1	66088	042492
68	9.7185	46590	886709	1	66124	278763
67	9.7183	80466	607946	1	66160	547253
66	9.7182	14306	060693	1	66196	847988
30 65	9.7180	48109	212705	.0001	66233	181000
64	9.7178	81876	031705	1	66269	546313
63	9.7177	15606	485392	1	66305	943958
62	9.7175	49300	541434	1	66342	373964
61	9.7173	82958	167470	1	66378	836357
30 60	9.7172	16579	331113	.0001	66415	331167
59	9.7170	50163	999946	1	66451	858422
58	9.7168	83712	141524	1	66488	418152
57	9.7167	17223	723372	1	66525	010384
56	9.7165	50698	712988	1	66561	635148
30 55	9.7163	84137	077840	.0001	66598	292470
54	9.7162	17538	785370	1	66634	982382
53	9.7160	50903	802988	1	66671	704912
52	9.7158	84232	098076	1	66708	460087
51	9.7157	17523	637989	1	66745	247938
30 50	9.7155	50778	390051	.0001	66782	068493
49	9.7153	83996	321558	1	66818	921780
48	9.7152	17177	399778	1	66855	807830
47	9.7150	50321	591948	1	66892	726671
46	9.7148	83428	865277	1	66929	678331
30 45	9.7147	16499	186946	.0001	66966	662841
44	9.7145	49532	524105	1	67003	680229
43	9.7143	82528	843876	1	67040	730525
42	9.7142	15488	113351	1	67077	813757
41	9.7140	48410	299594	1	67114	929955
30 40	9.7138	81295	369639	.0001	67152	079148

## Log Tangents

c	log. tan.			$\Delta^1$		
30 40	9.7138	81295	369639	.0001	67152	079148
39	9.7137	14143	290491	1	67189	261366
38	9.7135	46954	029125	1	67226	476639
37	9.7133	79727	552486	1	67263	724993
36	9.7132	12463	827493	1	67301	006462
30 35	9.7130	45162	821031	.0001	67338	321072
34	9.7128	77824	499959	1	67375	668855
33	9.7127	10448	831104	1	67413	049839
32	9.7125	43035	781265	1	67450	464054
31	9.7123	75585	317211	1	67487	911530
30 30	9.7122	08097	405681	.0001	67525	392296
29	9.7120	40572	013385	1	67562	906383
28	9.7118	73009	107002	1	67600	453821
27	9.7117	05408	653181	1	67638	034637
26	9.7115	37770	618544	1	67675	648863
30 25	9.7113	70094	969681	.0001	67713	296530
24	9.7112	02381	673151	1	67750	977666
23	9.7110	34630	695485	1	67788	692302
22	9.7108	66842	003183	1	67826	440467
21	9.7106	99015	562716	1	67864	222193
30 20	9.7105	31151	340523	.0001	67902	037507
19	9.7103	63249	303016	1	67939	886444
18	9.7101	95309	416572	1	67977	769028
17	9.7100	27331	647544	1	68015	685296
16	9.7098	59315	962248	1	68053	635272
30 15	9.7096	91262	326976	.0001	68091	618991
14	9.7095	23170	707985	1	68129	636481
13	9.7093	55041	071504	1	68167	687773
12	9.7091	86873	383731	1	68205	772898
11	9.7090	18667	610833	1	68243	891886
30 10	9.7088	50423	718947	.0001	68282	044767
09	9.7086	82141	674180	1	68320	231573
08	9.7085	13821	442607	1	68358	452333
07	9.7083	45462	990274	1	68396	707078
06	9.7081	77066	283196	1	68434	995841
30 05	9.7080	08631	287355	.0001	68473	318650
04	9.7078	40157	968705	1	68511	675537
03	9.7076	71646	293168	1	68550	066533
02	9.7075	03096	226635	1	68588	491668
01	9.7073	34507	734967	1	68626	950973
30 00	9.7071	65880	783994	.0001	68665	444481

## Log Tangents

c	log. tan.			$\Delta^1$		
30 00	9.7071	65880	783994	.0001	68665	444481
29 99	9.7069	97215	339513	1	68703	972220
98	9.7068	28511	367293	1	68742	534224
97	9.7066	59768	833069	1	68781	130521
96	9.7064	90987	702548	1	68819	761146
29 95	9.7063	22167	941402	.0001	68858	426126
94	9.7061	53309	515276	1	68897	125496
93	9.7059	84412	389780	1	68935	859285
92	9.7058	15476	530495	1	68974	627525
91	9.7056	46501	902970	1	69013	430246
29 90	9.7054	77488	472724	.0001	69052	267483
89	9.7053	08436	205241	1	69091	139264
88	9.7051	39345	065977	1	69130	045622
87	9.7049	70215	020355	1	69168	986588
86	9.7048	01046	033767	1	69207	962194
29 85	9.7046	31838	071573	.0001	69246	972472
84	9.7044	62591	099101	1	69286	017452
83	9.7042	93305	081649	1	69325	097168
82	9.7041	23979	984481	1	69364	211651
81	9.7039	54615	772830	1	69403	360932
29 80	9.7037	85212	411898	.0001	69442	545043
79	9.7036	15769	866855	1	69481	764016
78	9.7034	46288	102839	1	69521	017885
77	9.7032	76767	084954	1	69560	306680
76	9.7031	07206	778274	1	69599	630432
29 75	9.7029	37607	147842	.0001	69638	989175
74	9.7027	67968	158667	1	69678	382940
73	9.7025	98289	775727	1	69717	811761
72	9.7024	28571	963966	1	69757	275669
71	9.7022	58814	688297	1	69796	774695
29 70	9.7020	89017	913602	.0001	69836	308874
69	9.7019	19181	604728	1	69875	878235
68	9.7017	49305	726493	1	69915	482814
67	9.7015	79390	243679	1	69955	122642
66	9.7014	09435	121037	1	69994	797750
29 65	9.7012	39440	323287	.0001	70034	508172
64	9.7010	69405	815115	1	70074	253942
63	9.7008	99331	561173	1	70114	035090
62	9.7007	29217	526083	1	70153	851649
61	9.7005	59063	674434	1	70193	703654
29 60	9.7003	88869	970780	.0001	70233	591135

## Log Tangents

c	log. tan.			$\Delta^1$		
29 60	9.7003	88869	970780	.0001	70233	591135
59	9.7002	18636	379645	1	70273	514127
58	9.7000	48362	865518	1	70313	472662
57	9.6998	78049	392856	1	70353	466773
56	9.6997	07695	926083	1	70393	496492
29 55	9.6995	37302	429591	.0001	70433	561853
54	9.6993	66868	867738	1	70473	662890
53	9.6991	96395	204848	1	70513	799635
52	9.6990	25881	405213	1	70553	972120
51	9.6988	55327	433093	1	70594	180380
29 50	9.6986	84733	252713	.0001	70634	424448
49	9.6985	14098	828265	1	70674	704356
48	9.6983	43424	123909	1	70715	020139
47	9.6981	72709	103770	1	70755	371830
46	9.6980	01953	731940	1	70795	759462
29 45	9.6978	31157	972478	.0001	70836	183068
44	9.6976	60321	789410	1	70876	642683
43	9.6974	89445	146727	1	70917	138338
42	9.6973	18528	008389	1	70957	670071
41	9.6971	47570	338318	1	70998	237910
29 40	9.6969	76572	100408	.0001	71038	841895
39	9.6968	05533	258513	1	71079	482053
38	9.6966	34453	776460	1	71120	158424
37	9.6964	63333	618036	1	71160	871039
36	9.6962	92172	746997	1	71201	619930
29 35	9.6961	20971	127067	.0001	71242	405135
34	9.6959	49728	721932	1	71283	226686
33	9.6957	78445	495246	1	71324	084616
32	9.6956	07121	410630	1	71364	978962
31	9.6954	35756	431668	1	71405	909754
29 30	9.6952	64350	521914	.0001	71446	877031
29	9.6950	92903	644883	1	71487	880823
28	9.6949	21415	764060	1	71528	921167
27	9.6947	49886	842893	1	71569	998097
26	9.6945	78316	844796	1	71611	111647
29 25	9.6944	06705	733149	.0001	71652	261850
24	9.6942	35053	471299	1	71693	448742
23	9.6940	63360	022557	1	71734	672359
22	9.6938	91625	350198	1	71775	932733
21	9.6937	19849	417465	1	71817	229900
29 20	9.6935	48032	187565	.0001	71858	563894

## Log Tangents

c	log. tan.			$\Delta^1$		
29 20	9.6935	48032	187565	.0001	71858	563894
19	9.6933	76173	623671	1	71899	934750
18	9.6932	04273	688921	1	71941	342503
17	9.6930	32332	346418	1	71982	787189
16	9.6928	60349	559229	1	72024	268839
29 15	9.6926	88325	290390	.0001	72065	787493
14	9.6925	16259	502897	1	72107	343183
13	9.6923	44152	159714	1	72148	935944
12	9.6921	72003	223770	1	72190	565813
11	9.6919	99812	657957	1	72232	232822
29 10	9.6918	27580	425135	.0001	72273	937010
09	9.6916	55306	488125	1	72315	678409
08	9.6914	82990	809716	1	72357	457056
07	9.6913	10633	352660	1	72399	272986
06	9.6911	38234	079674	1	72441	126235
29 05	9.6909	65792	953439	.0001	72483	016836
04	9.6907	93309	936603	1	72524	944829
03	9.6906	20784	991774	1	72566	910245
02	9.6904	48218	081529	1	72608	913121
01	9.6902	75609	168408	1	72650	953495
29 00	9.6901	02958	214913	.0001	72693	031400
28 99	9.6899	30265	183513	1	72735	146873
98	9.6897	57530	036640	1	72777	299948
97	9.6895	84752	736692	1	72819	490663
96	9.6894	11933	246029	1	72861	719054
28 95	9.6892	39071	526975	.0001	72903	985156
94	9.6890	66167	541819	1	72946	289004
93	9.6888	93221	252815	1	72988	630636
92	9.6887	20232	622179	1	73031	010088
91	9.6885	47201	612091	1	73073	427394
28 90	9.6883	74128	184697	.0001	73115	882592
89	9.6882	01012	302105	1	73158	375719
88	9.6880	27853	926386	1	73200	906811
87	9.6878	54653	019575	1	73243	475901
86	9.6876	81409	543674	1	73286	083031
28 85	9.6875	08123	460643	.0001	73328	728232
84	9.6873	34794	732411	1	73371	411546
83	9.6871	61423	320865	1	73414	133004
82	9.6869	88009	187861	1	73456	892647
81	9.6868	14552	295214	1	73499	690511
28 80	9.6866	41052	604703	.0001	73542	526629



## Log Tangents

c	log. tan.			$\Delta^1$		
28 80	9.6866	41052	604703	.0001	73542	526629
79	9.6864	67510	078074	1	73585	401043
78	9.6862	93924	677031	1	73628	313787
77	9.6861	20296	363244	1	73671	264899
76	9.6859	46625	098345	1	73714	254413
28 75	9.6857	72910	843932	.0001	73757	282371
74	9.6855	99153	561561	1	73800	348806
73	9.6854	25353	212755	1	73843	453758
72	9.6852	51509	758997	1	73886	597261
71	9.6850	77623	161736	1	73929	779355
28 70	9.6849	03693	382381	.0001	73973	000076
69	9.6847	29720	382305	1	74016	259462
68	9.6845	55704	122843	1	74059	557549
67	9.6843	81644	565294	1	74102	894377
66	9.6842	07541	670917	1	74146	269980
28 65	9.6840	33395	400937	.0001	74189	684400
64	9.6838	59205	716537	1	74233	137670
63	9.6836	84972	578867	1	74276	629830
62	9.6835	10695	949037	1	74320	160919
61	9.6833	36375	788118	1	74363	730971
28 60	9.6831	62012	057147	.0001	74407	340028
59	9.6829	87604	717119	1	74450	988126
58	9.6828	13153	728993	1	74494	675301
57	9.6826	38659	053692	1	74538	401595
56	9.6824	64120	652097	1	74582	167043
28 55	9.6822	89538	485054	.0001	74625	971684
54	9.6821	14912	513370	1	74669	815557
53	9.6819	40242	697813	1	74713	698698
52	9.6817	65528	999115	1	74757	621148
51	9.6815	90771	377967	1	74801	582944
28 50	9.6814	15969	795023	.0001	74845	584124
49	9.6812	41124	210899	1	74889	624726
48	9.6810	66234	586173	1	74933	704791
47	9.6808	91300	881382	1	74977	824355
46	9.6807	16323	057027	1	75021	983457
28 45	9.6805	41301	073570	.0001	75066	182137
44	9.6803	66234	891433	1	75110	420433
43	9.6801	91124	471000	1	75154	698384
42	9.6800	15969	772616	1	75199	016027
41	9.6798	40770	756589	1	75243	373403
28 40	9.6796	65527	383186	.0001	75287	770551

## Log Tangents

c	log. tan.			$\Delta^1$		
28 40	9.6796	65527	383186	.0001	75287	770551
39	9.6794	90239	612635	1	75332	207509
38	9.6793	14907	405126	1	75376	684316
37	9.6791	39530	720810	1	75421	201012
36	9.6789	64109	519798	1	75465	757635
28 35	9.6787	88643	762163	.0001	75510	354226
34	9.6786	13133	407937	1	75554	990822
33	9.6784	37578	417115	1	75599	667465
32	9.6782	61978	749650	1	75644	384191
31	9.6780	86334	365459	1	75689	141043
28 30	9.6779	10645	224416	.0001	75733	938058
29	9.6777	34911	286358	1	75778	775278
28	9.6775	59132	511080	1	75823	652739
27	9.6773	83308	858341	1	75868	570484
26	9.6772	07440	287857	1	75913	528552
28 25	9.6770	31526	759305	.0001	75958	526981
24	9.6768	55568	232324	1	76003	565814
23	9.6766	79564	666510	1	76048	645087
22	9.6765	03516	021423	1	76093	764845
21	9.6763	27422	256578	1	76138	925123
28 20	9.6761	51283	331455	.0001	76184	125964
19	9.6759	75099	205491	1	76229	367407
18	9.6757	98869	838084	1	76274	649494
17	9.6756	22595	188590	1	76319	972263
16	9.6754	46275	216327	1	76365	335755
28 15	9.6752	69909	880572	.0001	76410	740011
14	9.6750	93499	140561	1	76456	185072
13	9.6749	17042	955489	1	76501	670977
12	9.6747	40541	284512	1	76547	197767
11	9.6745	63994	086745	1	76592	765483
28 10	9.6743	87401	321262	.0001	76638	374166
09	9.6742	10762	947096	1	76684	023856
08	9.6740	34078	923240	1	76729	714595
07	9.6738	57349	208645	1	76775	446422
06	9.6736	80573	762223	1	76821	219379
28 05	9.6735	03752	542844	.0001	76867	033507
04	9.6733	26885	509337	1	76912	888848
03	9.6731	49972	620489	1	76958	785441
02	9.6729	73013	835048	1	77004	723330
01	9.6727	96009	111718	1	77050	702552
28 00	9.6726	18958	409166	.0001	77096	723153

## Log Tangents

c	log. tan.			$\Delta^1$		
28 00	9.6726	18958	409166	.0001	77096	723153
27 99	9.6724	41861	686013	1	77142	785171
98	9.6722	64718	900842	1	77188	888649
97	9.6720	87530	012193	1	77235	033629
96	9.6719	10294	978564	1	77281	220150
27 95	9.6717	33013	758414	.0001	77327	448257
94	9.6715	55686	310157	1	77373	717989
93	9.6713	78312	592168	1	77420	029389
92	9.6712	00892	562779	1	77466	382498
91	9.6710	23426	180281	1	77512	777359
27 90	9.6708	45913	402922	.0001	77559	214013
89	9.6706	68354	188909	1	77605	692502
88	9.6704	90748	496407	1	77652	212868
87	9.6703	13096	283539	1	77698	775154
86	9.6701	35397	508385	1	77745	379402
27 85	9.6699	57652	128983	.0001	77792	025652
84	9.6697	79860	103331	1	77838	713950
83	9.6696	02021	389381	1	77885	444335
82	9.6694	24135	945046	1	77932	216851
81	9.6692	46203	728195	1	77979	031541
27 80	9.6690	68224	696654	.0001	78025	888446
79	9.6688	90198	808208	1	78072	787610
78	9.6687	12126	020598	1	78119	729075
77	9.6685	34006	291523	1	78166	712884
76	9.6683	55839	578639	1	78213	739079
27 75	9.6681	77625	839560	.0001	78260	807704
74	9.6679	99365	031856	1	78307	918802
73	9.6678	21057	113054	1	78355	072414
72	9.6676	42702	040640	1	78402	268585
71	9.6674	64299	772055	1	78449	507358
27 70	9.6672	85850	264697	.0001	78496	788775
69	9.6671	07353	475922	1	78544	112881
68	9.6669	28809	363041	1	78591	479717
67	9.6667	50217	883324	1	78638	889329
66	9.6665	71578	993995	1	78686	341758
27 65	9.6663	92892	652237	.0001	78733	837050
64	9.6662	14158	815187	1	78781	375245
63	9.6660	35377	439942	1	78828	956390
62	9.6658	56548	483552	1	78876	580528
61	9.6656	77671	903024	1	78924	247702
27 60	9.6654	98747	655322	.0001	78971	957955

## Log Tangents

c	log. tan.			$\Delta^1$		
27 60	9.6654	98747	655322	.0001	78971	957955
59	9.6653	19775	697367	1	79019	711334
58	9.6651	40755	986033	1	79067	507878
57	9.6649	61688	478155	1	79115	347637
56	9.6647	82573	130518	1	79163	230650
27 55	9.6646	03409	899868	.0001	79211	156965
54	9.6644	24198	742903	1	79259	126622
53	9.6642	44939	616281	1	79307	139670
52	9.6640	65632	476611	1	79355	196149
51	9.6638	86277	280462	1	79403	296107
27 50	9.6637	06873	984355	.0001	79451	439587
49	9.6635	27422	544768	1	79499	626633
48	9.6633	47922	918135	1	79547	857290
47	9.6631	68375	060845	1	79596	131603
46	9.6629	88778	929242	1	79644	449617
27 45	9.6628	09134	479625	.0001	79692	811375
44	9.6626	29441	668250	1	79741	216925
43	9.6624	49700	451325	1	79789	666310
42	9.6622	69910	785015	1	79838	159575
41	9.6620	90072	625440	1	79886	696765
27 40	9.6619	10185	928675	.0001	79935	277925
39	9.6617	30250	650750	1	79983	903102
38	9.6615	50266	747648	1	80032	572340
37	9.6613	70234	175308	1	80081	285684
36	9.6611	90152	889624	1	80130	043180
27 35	9.6610	10022	846444	.0001	80178	844873
34	9.6608	29844	001571	1	80227	690809
33	9.6606	49616	310762	1	80276	581034
32	9.6604	69339	729728	1	80325	515593
31	9.6602	89014	214135	1	80374	494532
27 30	9.6601	08639	719603	.0001	80423	517897
29	9.6599	28216	201706	1	80472	585734
28	9.6597	47743	615972	1	80521	698088
27	9.6595	67221	917884	1	80570	855006
26	9.6593	86651	062878	1	80620	056535
27 25	9.6592	06031	006343	.0001	80669	302719
24	9.6590	25361	703624	1	80718	593607
23	9.6588	44643	110017	1	80767	929242
22	9.6586	63875	180775	1	80817	309672
21	9.6584	83057	871103	1	80866	734945
27 20	9.6583	02191	136158	.0001	80916	205106

## Log Tangents

c	log. tan.			$\Delta^1$		
27 20	9.6583	02191	136158	.0001	80916	205106
19	9.6581	21274	931052	1	80965	720201
18	9.6579	40309	210851	1	81015	280277
17	9.6577	59293	930574	1	81064	885383
16	9.6575	78229	045191	1	81114	535562
27 15	9.6573	97114	509629	.0001	81164	230865
14	9.6572	15950	278764	1	81213	971335
13	9.6570	34736	307429	1	81263	757022
12	9.6568	53472	550407	1	81313	587972
11	9.6566	72158	962435	1	81363	464232
27 10	9.6564	90795	498203	.0001	81413	385849
09	9.6563	09382	112354	1	81463	352872
08	9.6561	27918	759482	1	81513	365346
07	9.6559	46405	394136	1	81563	423320
06	9.6557	64841	970816	1	81613	526842
27 05	9.6555	83228	443974	.0001	81663	675958
04	9.6554	01564	768016	1	81713	870716
03	9.6552	19850	897300	1	81764	111165
02	9.6550	38086	786135	1	81814	397352
01	9.6548	56272	388783	1	81864	729325
27 00	9.6546	74407	659458	.0001	81915	107132
26 99	9.6544	92492	552326	1	81965	530820
98	9.6543	10527	021506	1	82016	000440
97	9.6541	28511	021066	1	82066	516037
96	9.6539	46444	505029	1	82117	077661
26 95	9.6537	64327	427368	.0001	82167	685359
94	9.6535	82159	742009	1	82218	339182
93	9.6533	99941	402827	1	82269	039176
92	9.6532	17672	363651	1	82319	785390
91	9.6530	35352	578261	1	82370	577874
26 90	9.6528	52982	000387	.0001	82421	416674
89	9.6526	70560	583713	1	82472	301843
88	9.6524	88088	281870	1	82523	233425
87	9.6523	05565	048445	1	82574	211473
86	9.6521	22990	836972	1	82625	236033
26 85	9.6519	40365	600939	.0001	82676	307157
84	9.6517	57689	293782	1	82727	424891
83	9.6515	74961	868891	1	82778	589287
82	9.6513	92183	279604	1	82829	800392
81	9.6512	09353	479212	1	82881	058258
26 80	9.6510	26472	420954	.0001	82932	362932

## Log Tangents

c	log. tan.			$\Delta^1$		
26 80	9.6510	26472	420954	.0001	82932	362932
79	9.6508	43540	058022	1	82983	714464
78	9.6506	60556	343558	1	83035	112905
77	9.6504	77521	230653	1	83086	558303
76	9.6502	94434	672350	1	83138	050710
26 75	9.6501	11296	621640	.0001	83189	590173
74	9.6499	28107	031467	1	83241	176744
73	9.6497	44865	854723	1	83292	810472
72	9.6495	61573	044251	1	83344	491408
71	9.6493	78228	552843	1	83396	219601
26 70	9.6491	94832	333242	.0001	83447	995102
69	9.6490	11384	338140	1	83499	817961
68	9.6488	27884	520179	1	83551	688228
67	9.6486	44332	831951	1	83603	605955
66	9.6484	60729	225996	1	83655	571190
26 65	9.6482	77073	654806	.0001	83707	583986
64	9.6480	93366	070820	1	83759	644393
63	9.6479	09606	426427	1	83811	752461
62	9.6477	25794	673966	1	83863	908241
61	9.6475	41930	765725	1	83916	111786
26 60	9.6473	58014	653939	.0001	83968	363143
59	9.6471	74046	290796	1	84020	662367
58	9.6469	90025	628429	1	84073	009507
57	9.6468	05952	618922	1	84125	404614
56	9.6466	21827	214308	1	84177	847742
26 55	9.6464	37649	366566	.0001	84230	338939
54	9.6462	53419	027627	1	84282	878258
53	9.6460	69136	149369	1	84335	465752
52	9.6458	84800	683617	1	84388	101469
51	9.6457	00412	582148	1	84440	785465
26 50	9.6455	15971	796683	.0001	84493	517788
49	9.6453	31478	278895	1	84546	298492
48	9.6451	46931	980403	1	84599	127629
47	9.6449	62332	852774	1	84652	005251
46	9.6447	77680	847523	1	84704	931409
26 45	9.6445	92975	916114	.0001	84757	906155
44	9.6444	08218	009959	1	84810	929544
43	9.6442	23407	080415	1	84864	001625
42	9.6440	38543	078790	1	84917	122452
41	9.6438	53625	956338	1	84970	292079
26 40	9.6436	68655	664259	.0001	85023	510556

## Log Tangents

c	log. tan.			$\Delta^1$		
26 40	9.6436	68655	664259	.0001	85023	510556
39	9.6434	83632	153703	1	85076	777937
38	9.6432	98555	375766	1	85130	094274
37	9.6431	13425	281492	1	85183	459621
36	9.6429	28241	821871	1	85236	874031
26 35	9.6427	43004	947840	.0001	85290	337555
34	9.6425	57714	610285	1	85343	850248
33	9.6423	72370	760037	1	85397	412162
32	9.6421	86973	347875	1	85451	023352
31	9.6420	01522	324523	1	85504	683870
26 30	9.6418	16017	640653	.0001	85558	393769
29	9.6416	30459	246884	1	85612	153104
28	9.6414	44847	093780	1	85665	961927
27	9.6412	59181	131853	1	85719	820293
26	9.6410	73461	311560	1	85773	728255
26 25	9.6408	87687	583305	.0001	85827	685867
24	9.6407	01859	897438	1	85881	693184
23	9.6405	15978	204254	1	85935	750257
22	9.6403	30042	453997	1	85989	857143
21	9.6401	44052	596854	1	86044	013896
26 20	9.6399	58008	582958	.0001	86098	220569
19	9.6397	71910	362389	1	86152	477217
18	9.6395	85757	885172	1	86206	783894
17	9.6393	99551	101278	1	86261	140655
16	9.6392	13289	960623	1	86315	547555
26 15	9.6390	26974	413068	.0001	86370	004648
14	9.6388	40604	408420	1	86424	511988
13	9.6386	54179	896432	1	86479	069632
12	9.6384	67700	826800	1	86533	677633
11	9.6382	81167	149167	1	86588	336047
26 10	9.6380	94578	813120	.0001	86643	044929
09	9.6379	07935	768191	1	86697	804334
08	9.6377	21237	963857	1	86752	614318
07	9.6375	34485	349539	1	86807	474936
06	9.6373	47677	874603	1	86862	386241
26 05	9.6371	60815	488362	.0001	86917	348294
04	9.6369	73898	140068	1	86972	361145
03	9.6367	86925	778923	1	87027	424854
02	9.6365	99898	354069	1	87082	539474
01	9.6364	12815	814595	1	87137	705061
26 00	9.6362	25678	109534	.0001	87192	921674

## Log Tangents

c	log. tan.			$\Delta^1$		
26 00	9.6362	25678	109534	.0001	87192	921674
25 99	9.6360	38485	187860	1	87248	189367
98	9.6358	51236	998493	1	87303	508194
97	9.6356	63933	490299	1	87358	878215
96	9.6354	76574	612084	1	87414	299485
25 95	9.6352	89160	312599	.0001	87469	772059
94	9.6351	01690	540540	1	87525	295996
93	9.6349	14165	244544	1	87580	871350
92	9.6347	26584	373194	1	87636	498181
91	9.6345	38947	875013	1	87692	176542
25 90	9.6343	51255	698471	.0001	87747	906493
89	9.6341	63507	791978	1	87803	688090
88	9.6339	75704	103888	1	87859	521388
87	9.6337	87844	582500	1	87915	406447
86	9.6335	99929	176053	1	87971	343324
25 85	9.6334	11957	832729	.0001	88027	332074
84	9.6332	23930	500655	1	88083	372757
83	9.6330	35847	127898	1	88139	465429
82	9.6328	47707	662469	1	88195	610148
81	9.6326	59512	052321	1	88251	806972
25 80	9.6324	71260	245349	.0001	88308	055958
79	9.6322	82952	189391	1	88364	357165
78	9.6320	94587	832226	1	88420	710651
77	9.6319	06167	121575	1	88477	116472
76	9.6317	17690	005103	1	88533	574689
25 75	9.6315	29156	430414	.0001	88590	085358
74	9.6313	40566	345056	1	88646	648538
73	9.6311	51919	696518	1	88703	264288
72	9.6309	63216	432230	1	88759	932666
71	9.6307	74456	499564	1	88816	653732
25 70	9.6305	85639	845832	.0001	88873	427542
69	9.6303	96766	418290	1	88930	254157
68	9.6302	07836	164133	1	88987	133634
67	9.6300	18849	030499	1	89044	066035
66	9.6298	29804	964464	1	89101	051416
25 65	9.6296	40703	913048	.0001	89158	089839
64	9.6294	51545	823209	1	89215	181359
63	9.6292	62330	641850	1	89272	326041
62	9.6290	73058	315809	1	89329	523940
61	9.6288	83728	791869	1	89386	775117
25 60	9.6286	94342	016752	.0001	89444	079632



## Log Tangents

c	log. tan.			$\Delta^1$		
25 60	9.6286	94342	016752	.0001	89444	079632
59	9.6285	04897	937120	1	89501	437545
58	9.6283	15396	499575	1	89558	848915
57	9.6281	25837	650660	1	89616	313803
56	9.6279	36221	336857	1	89673	832267
25 55	9.6277	46547	504590	.0001	89731	404369
54	9.6275	56816	100221	1	89789	030169
53	9.6273	67027	070052	1	89846	709727
52	9.6271	77180	360325	1	89904	443103
51	9.6269	87275	917222	1	89962	230359
25 50	9.6267	97313	686863	.0001	90020	071553
49	9.6266	07293	615310	1	90077	966749
48	9.6264	17215	648561	1	90135	916004
47	9.6262	27079	732557	1	90193	919383
46	9.6260	36885	813174	1	90251	976943
25 45	9.6258	46633	836231	.0001	90310	088749
44	9.6256	56323	747482	1	90368	254860
43	9.6254	65955	492622	1	90426	475336
42	9.6252	75529	017286	1	90484	750242
41	9.6250	85044	267044	1	90543	079636
25 40	9.6248	94501	187408	.0001	90601	463581
39	9.6247	03899	723827	1	90659	902140
38	9.6245	13239	821687	1	90718	395373
37	9.6243	22521	426314	1	90776	943341
36	9.6241	31744	482973	1	90835	546110
25 35	9.6239	40908	936863	.0001	90894	203738
34	9.6237	50014	733125	1	90952	916288
33	9.6235	59061	816837	1	91011	683824
32	9.6233	68050	133013	1	91070	506407
31	9.6231	76979	626606	1	91129	384101
25 30	9.6229	85850	242505	.0001	91188	316965
29	9.6227	94661	925540	1	91247	305067
28	9.6226	03414	620473	1	91306	348464
27	9.6224	12108	272009	1	91365	447224
26	9.6222	20742	824785	1	91424	601407
25 25	9.6220	29318	223378	.0001	91483	811077
24	9.6218	37834	412301	1	91543	076297
23	9.6216	46291	336004	1	91602	397131
22	9.6214	54688	938873	1	91661	773640
21	9.6212	63027	165233	1	91721	205891
25 20	9.6210	71305	959342	.0001	91780	693946

## Log Tangents

c	log. tan.			$\Delta^1$
25 20	9.6210	71305	959342	.0001 91780 693946
19	9.6208	79525	265396	1 91840 237868
18	9.6206	87685	027528	1 91899 837721
17	9.6204	95785	189807	1 91959 493570
16	9.6203	03825	696237	1 92019 205478
25 15	9.6201	11806	490759	.0001 92078 973509
14	9.6199	19727	517250	1 92138 797729
13	9.6197	27588	719521	1 92198 678201
12	9.6195	35390	041320	1 92258 614988
11	9.6193	43131	426332	1 92318 608157
25 10	9.6191	50812	818175	.0001 92378 657772
09	9.6189	58434	160403	1 92438 763896
08	9.6187	65995	396507	1 92498 926597
07	9.6185	73496	469910	1 92559 145937
06	9.6183	80937	323973	1 92619 421983
25 05	9.6181	88317	901990	.0001 92679 754799
04	9.6179	95638	147191	1 92740 144451
03	9.6178	02898	002740	1 92800 591004
02	9.6176	10097	411736	1 92861 094524
01	9.6174	17236	317212	1 92921 655075
25 00	9.6172	24314	662137	.0001 92982 272725
24 99	9.6170	31332	389412	1 93042 947539
98	9.6168	38289	441873	1 93103 679581
97	9.6166	45185	762292	1 93164 468921
96	9.6164	52021	293371	1 93225 315620
24 95	9.6162	58795	977751	.0001 93286 219750
94	9.6160	65509	758001	1 93347 181372
93	9.6158	72162	576629	1 93408 200556
92	9.6156	78754	376073	1 93469 277367
91	9.6154	85285	098706	1 93530 411873
24 90	9.6152	91754	686833	.0001 93591 604138
89	9.6150	98163	082695	1 93652 854233
88	9.6149	04510	228462	1 93714 162221
87	9.6147	10796	066241	1 93775 528171
86	9.6145	17020	538070	1 93836 952151
24 85	9.6143	23183	585919	.0001 93898 434227
84	9.6141	29285	151692	1 93959 974467
83	9.6139	35325	177225	1 94021 572938
82	9.6137	41303	604287	1 94083 229708
81	9.6135	47220	374579	1 94144 944845
24 80	9.6133	53075	429734	.0001 94206 718417

## Log Tangents

c	log. tan.			$\Delta^1$		
24 80	9.6133	53075	429734	.0001	94206	718417
79	9.6131	58868	711317	1	94268	550492
78	9.6129	64600	160825	1	94330	441137
77	9.6127	70269	719688	1	94392	390422
76	9.6125	75877	329266	1	94454	398413
24 75	9.6123	81422	930853	.0001	94516	465181
74	9.6121	86906	465672	1	94578	590793
73	9.6119	92327	874879	1	94640	775319
72	9.6117	97687	099560	1	94703	018825
71	9.6116	02984	080735	1	94765	321382
24 70	9.6114	08218	759353	.0001	94827	683061
69	9.6112	13391	076292	1	94890	103926
68	9.6110	18500	972366	1	94952	584051
67	9.6108	23548	388315	1	95015	123502
66	9.6106	28533	264813	1	95077	722351
24 65	9.6104	33455	542462	.0001	95140	380667
64	9.6102	38315	161795	1	95203	098517
63	9.6100	43112	063278	1	95265	875975
62	9.6098	47846	187303	1	95328	713109
61	9.6096	52517	474194	1	95391	609987
24 60	9.6094	57125	864207	.0001	95454	566683
59	9.6092	61671	297524	1	95517	583264
58	9.6090	66153	714260	1	95580	659803
57	9.6088	70573	054457	1	95643	796369
56	9.6086	74929	258088	1	95706	993033
24 55	9.6084	79222	265055	.0001	95770	249864
54	9.6082	83452	015191	1	95833	566937
53	9.6080	87618	448254	1	95896	944319
52	9.6078	91721	503935	1	95960	382082
51	9.6076	95761	121853	1	96023	880299
24 50	9.6074	99737	241554	.0001	96087	439040
49	9.6073	03649	802514	1	96151	058376
48	9.6071	07498	744138	1	96214	738379
47	9.6069	11284	005759	1	96278	479121
46	9.6067	15005	526638	1	96342	280673
24 45	9.6065	18663	245965	.0001	96406	143109
44	9.6063	22257	102856	1	96470	066498
43	9.6061	25787	036358	1	96534	050915
42	9.6059	29252	985443	1	96598	096430
41	9.6057	32654	889013	1	96662	203116
24 40	9.6055	35992	685897	.0001	96726	371047

## Log Tangents

c	log. tan.			$\Delta^1$		
24 40	9.6055	35992	685897	.0001	96726	371047
39	9.6053	39266	314850	1	96790	600294
38	9.6051	42475	714556	1	96854	890930
37	9.6049	45620	823626	1	96919	243029
36	9.6047	48701	580597	1	96983	656663
24 35	9.6045	51717	923934	.0001	97048	131904
34	9.6043	54669	792030	1	97112	668828
33	9.6041	57557	123202	1	97177	267507
32	9.6039	60379	855695	1	97241	928014
31	9.6037	63137	927681	1	97306	650422
24 30	9.6035	65831	277259	.0001	97371	434807
29	9.6033	68459	842452	1	97436	281242
28	9.6031	71023	561210	1	97501	189799
27	9.6029	73522	371411	1	97566	160555
26	9.6027	75956	210856	1	97631	193583
24 25	9.6025	78325	017273	.0001	97696	288957
24	9.6023	80628	728316	1	97761	446752
23	9.6021	82867	281564	1	97826	667042
22	9.6019	85040	614522	1	97891	949902
21	9.6017	87148	664620	1	97957	295408
24 20	9.6015	89191	369212	.0001	98022	703632
19	9.6013	91168	665580	1	98088	174654
18	9.6011	93080	490926	1	98153	708544
17	9.6009	94926	782382	1	98219	305381
16	9.6007	96707	477001	1	98284	965238
24 15	9.6005	98422	511763	.0001	98350	688193
14	9.6004	00071	823570	1	98416	474320
13	9.6002	01655	349250	1	98482	323695
12	9.6000	03173	025555	1	98548	236395
11	9.5998	04624	789160	1	98614	212495
24 10	9.5996	06010	576665	.0001	98680	252072
09	9.5994	07330	324593	1	98746	355203
08	9.5992	08583	969390	1	98812	521962
07	9.5990	09771	447428	1	98878	752429
06	9.5988	10892	694999	1	98945	046678
24 05	9.5986	11947	648321	.0001	99011	404788
04	9.5984	12936	243533	1	99077	826834
03	9.5982	13858	416699	1	99144	312894
02	9.5980	14714	103805	1	99210	863046
01	9.5978	15503	240759	1	99277	477368
24 00	9.5976	16225	763391	.0001	99344	155934

## Log Tangents

c	log. tan.			$\Delta^1$		
24 00	9.5976	16225	763391	.0001	99344	155934
23 99	9.5974	16881	607457	1	99410	898826
98	9.5972	17470	708631	1	99477	706119
97	9.5970	17993	002512	1	99544	577892
96	9.5968	18448	424620	1	99611	514223
23 95	9.5966	18836	910397	.0001	99678	515191
94	9.5964	19158	395206	1	99745	580872
93	9.5962	19412	814334	1	99812	711347
92	9.5960	19600	102987	1	99879	906693
91	9.5958	19720	196294	1	99947	166989
23 90	9.5956	19773	029305	.0002	00014	492315
89	9.5954	19758	536990	2	00081	882750
88	9.5952	19676	654240	2	00149	338370
87	9.5950	19527	315870	2	00216	859258
86	9.5948	19310	456612	2	00284	445493
23 85	9.5946	19026	011119	.0002	00352	097151
84	9.5944	18673	913968	2	00419	814316
83	9.5942	18254	099652	2	00487	597066
82	9.5940	17766	502586	2	00555	445481
81	9.5938	17211	057105	2	00623	359640
23 80	9.5936	16587	697465	.0002	00691	339626
79	9.5934	15896	357839	2	00759	385516
78	9.5932	15136	972323	2	00827	497393
77	9.5930	14309	474930	2	00895	675338
76	9.5928	13413	799592	2	00963	919428
23 75	9.5926	12449	880164	.0002	01032	229749
74	9.5924	11417	650415	2	01100	606378
73	9.5922	10317	044037	2	01169	049398
72	9.5920	09147	994639	2	01237	558891
71	9.5918	07910	435748	2	01306	134936
23 70	9.5916	06604	300812	.0002	01374	777617
69	9.5914	05229	523195	2	01443	487016
68	9.5912	03786	036179	2	01512	263212
67	9.5910	02273	772967	2	01581	106289
66	9.5908	00692	666678	2	01650	016330
23 65	9.5905	99042	650348	.0002	01718	993415
64	9.5903	97323	656933	2	01788	037629
63	9.5901	95535	619304	2	01857	149052
62	9.5899	93678	470252	2	01926	327769
61	9.5897	91752	142483	2	01995	573862
23 60	9.5895	89756	568621	.0002	02064	887413

## Log Tangents

c	log. tan.			$\Delta^1$		
23 60	9.5895	89756	568621	.0002	02064	887413
59	9.5893	87691	681208	2	02134	268507
58	9.5891	85557	412701	2	02203	717226
57	9.5889	83353	695475	2	02273	233653
56	9.5887	81080	461822	2	02342	817874
23 55	9.5885	78737	643948	.0002	02412	469970
54	9.5883	76325	173978	2	02482	190027
53	9.5881	73842	983951	2	02551	978127
52	9.5879	71291	005824	2	02621	834355
51	9.5877	68669	171469	2	02691	758797
23 50	9.5875	65977	412672	.0002	02761	751534
49	9.5873	63215	661138	2	02831	812655
48	9.5871	60383	848483	2	02901	942240
47	9.5869	57481	906243	2	02972	140377
46	9.5867	54509	765866	2	03042	407151
23 45	9.5865	51467	358715	.0002	03112	742645
44	9.5863	48354	616070	2	03183	146947
43	9.5861	45171	469123	2	03253	620141
42	9.5859	41917	848982	2	03324	162312
41	9.5857	38593	686670	2	03394	773548
23 40	9.5855	35198	913122	.0002	03465	453932
39	9.5853	31733	459190	2	03536	203553
38	9.5851	28197	255637	2	03607	022495
37	9.5849	24590	233142	2	03677	910845
36	9.5847	20912	322297	2	03748	868691
23 35	9.5845	17163	453606	.0002	03819	896118
34	9.5843	13343	557488	2	03890	993212
33	9.5841	09452	564276	2	03962	160063
32	9.5839	05490	404213	2	04033	396755
31	9.5837	01457	007458	2	04104	703377
23 30	9.5834	97352	304081	.0002	04176	080017
29	9.5832	93176	224064	2	04247	526760
28	9.5830	88928	697304	2	04319	043696
27	9.5828	84609	653608	2	04390	630913
26	9.5826	80219	022695	2	04462	288497
23 25	9.5824	75756	734198	.0002	04534	016538
24	9.5822	71222	717660	2	04605	815124
23	9.5820	66616	902536	2	04677	684343
22	9.5818	61939	218193	2	04749	624285
21	9.5816	57189	593908	2	04821	635036
23 20	9.5814	52367	958872	.0002	04893	716688

## Log Tangents

c	log. tan.			$\Delta^1$		
23 20	9.5814	52367	958872	.0002	04893	716688
19	9.5812	47474	242184	2	04965	869328
18	9.5810	42508	372856	2	05038	093047
17	9.5808	37470	279809	2	05110	387933
16	9.5806	32359	891876	2	05182	754076
23 15	9.5804	27177	137800	.0002	05255	191566
14	9.5802	21921	946234	2	05327	700493
13	9.5800	16594	245741	2	05400	280946
12	9.5798	11193	964795	2	05472	933017
11	9.5796	05721	031778	2	05545	656795
23 10	9.5794	00175	374983	.0002	05618	452371
09	9.5791	94556	922612	2	05691	319836
08	9.5789	88865	602776	2	05764	259280
07	9.5787	83101	343496	2	05837	270794
06	9.5785	77264	072702	2	05910	354470
23 05	9.5783	71353	718232	.0002	05983	510399
04	9.5781	65370	207833	2	06056	738672
03	9.5779	59313	469161	2	06130	039382
02	9.5777	53183	429779	2	06203	412620
01	9.5775	46980	017159	2	06276	858477
23 00	9.5773	40703	158682	.0002	06350	377046
22 99	9.5771	34352	781636	2	06423	968419
98	9.5769	27928	813217	2	06497	632690
97	9.5767	21431	180527	2	06571	369950
96	9.5765	14859	810577	2	06645	180291
22 95	9.5763	08214	630286	.0002	06719	063808
94	9.5761	01495	566478	2	06793	020594
93	9.5758	94702	545884	2	06867	050739
92	9.5756	87835	495145	2	06941	154342
91	9.5754	80894	340803	2	07015	331491
22 90	9.5752	73879	009312	.0002	07089	582283
89	9.5750	66789	427029	2	07163	906812
88	9.5748	59625	520217	2	07238	305170
87	9.5746	52387	215047	2	07312	777454
86	9.5744	45074	437593	2	07387	323756
22 85	9.5742	37687	113837	.0002	07461	944172
84	9.5740	30225	169665	2	07536	638796
83	9.5738	22688	530869	2	07611	407724
82	9.5736	15077	123145	2	07686	251049
81	9.5734	07390	872096	2	07761	168869
22 80	9.5731	99629	703227	.0002	07836	161278

## Log Tangents

c	log. tan.			$\Delta^1$		
22 80	9.5731	99629	703227	.0002	07836	161278
79	9.5729	91793	541949	2	07911	228372
78	9.5727	83882	313577	2	07986	370245
77	9.5725	75895	943332	2	08061	586996
76	9.5723	67834	356336	2	08136	878719
22 75	9.5721	59697	477617	.0002	08212	245510
74	9.5719	51485	232107	2	08287	687468
73	9.5717	43197	544639	2	08363	204687
72	9.5715	34834	339952	2	08438	797265
71	9.5713	26395	542687	2	08514	465299
22 70	9.5711	17881	077388	.0002	08590	208885
69	9.5709	09290	868503	2	08666	028122
68	9.5707	00624	840381	2	08741	923107
67	9.5704	91882	917274	2	08817	893936
66	9.5702	83065	023338	2	08893	940710
22 65	9.5700	74171	082628	.0002	08970	063524
64	9.5698	65201	019104	2	09046	262478
63	9.5696	56154	756626	2	09122	537669
62	9.5694	47032	218957	2	09198	889198
61	9.5692	37833	329759	2	09275	317161
22 60	9.5690	28558	012598	.0002	09351	821658
59	9.5688	19206	190940	2	09428	402788
58	9.5686	09777	788152	2	09505	060651
57	9.5684	00272	727501	2	09581	795345
56	9.5681	90690	932156	2	09658	606970
22 55	9.5679	81032	325186	.0002	09735	495627
54	9.5677	71296	829559	2	09812	461415
53	9.5675	61484	368144	2	09889	504435
52	9.5673	51594	863709	2	09966	624785
51	9.5671	41628	238924	2	10043	822568
22 50	9.5669	31584	416356	.0002	10121	097883
49	9.5667	21463	318473	2	10198	450832
48	9.5665	11264	867641	2	10275	881517
47	9.5663	00988	986124	2	10353	390036
46	9.5660	90635	596088	2	10430	976493
22 45	9.5658	80204	619595	.0002	10508	640990
44	9.5656	69695	978605	2	10586	383626
43	9.5654	59109	594979	2	10664	204506
42	9.5652	48445	390473	2	10742	103729
41	9.5650	37703	286744	2	10820	081401
22 40	9.5648	26883	205343	.0002	10898	137623



## Log Tangents

c	log. tan.			$\Delta^1$		
22 40	9.5648	26883	205343	.0002	10898	137623
39	9.5646	15985	067720	2	10976	272495
38	9.5644	05008	795225	2	11054	486124
37	9.5641	93954	309101	2	11132	778611
36	9.5639	82821	530490	2	11211	150059
22 35	9.5637	71610	380431	.0002	11289	600573
34	9.5635	60320	779858	2	11368	130254
33	9.5633	48952	649604	2	11446	739209
32	9.5631	37505	910395	2	11525	427540
31	9.5629	25980	482855	2	11604	195352
22 30	9.5627	14376	287503	.0002	11683	042748
29	9.5625	02693	244755	2	11761	969834
28	9.5622	90931	274921	2	11840	976714
27	9.5620	79090	298207	2	11920	063495
26	9.5618	67170	234712	2	11999	230278
22 25	9.5616	55171	004434	.0002	12078	477172
24	9.5614	43092	527262	2	12157	804282
23	9.5612	30934	722980	2	12237	211712
22	9.5610	18697	511268	2	12316	699569
21	9.5608	06380	811699	2	12396	267959
22 20	9.5605	93984	543740	.0002	12475	916988
19	9.5603	81508	626752	2	12555	646763
18	9.5601	68952	979989	2	12635	457392
17	9.5599	56317	522597	2	12715	348978
16	9.5597	43602	173619	2	12795	321631
22 15	9.5595	30806	851988	.0002	12875	375459
14	9.5593	17931	476529	2	12955	510566
13	9.5591	04975	965963	2	13035	727064
12	9.5588	91940	238899	2	13116	025057
11	9.5586	78824	213842	2	13196	404655
22 10	9.5584	65627	809187	.0002	13276	865967
09	9.5582	52350	943220	2	13357	409099
08	9.5580	38993	534121	2	13438	034161
07	9.5578	25555	499960	2	13518	741262
06	9.5576	12036	758698	2	13599	530512
22 05	9.5573	98437	228186	.0002	13680	402018
04	9.5571	84756	826168	2	13761	355891
03	9.5569	70995	470277	2	13842	392240
02	9.5567	57153	078037	2	13923	511175
01	9.5565	43229	566862	2	14004	712806
22 00	9.5563	29224	854056	.0002	14085	997244

## Log Tangents

c	log. tan.			$\Delta^1$		
22 00	9.5563	29224	854056	.0002	14085	997244
21 99	9.5561	15138	856812	2	14167	364598
98	9.5559	00971	492214	2	14248	814980
97	9.5556	86722	677234	2	14330	348499
96	9.5554	72392	328735	2	14411	965269
21 95	9.5552	57980	363466	.0002	14493	665398
94	9.5550	43486	698068	2	14575	449001
93	9.5548	28911	249067	2	14657	316186
92	9.5546	14253	932881	2	14739	267067
91	9.5543	99514	665814	2	14821	301756
21 90	9.5541	84693	364058	.0002	14903	420364
89	9.5539	69789	943694	2	14985	623006
88	9.5537	54804	320688	2	15067	909793
87	9.5535	39736	410895	2	15150	280836
86	9.5533	24586	130059	2	15232	736253
21 85	9.5531	09353	393806	.0002	15315	276152
84	9.5528	94038	117654	2	15397	900651
83	9.5526	78640	217003	2	15480	609861
82	9.5524	63159	607142	2	15563	403897
81	9.5522	47596	203245	2	15646	282872
21 80	9.5520	31949	920373	.0002	15729	246902
79	9.5518	16220	673471	2	15812	296101
78	9.5516	00408	377370	2	15895	430583
77	9.5513	84512	946787	2	15978	650465
76	9.5511	68534	296322	2	16061	955860
21 75	9.5509	52472	340462	.0002	16145	346885
74	9.5507	36326	993577	2	16228	823654
73	9.5505	20098	169923	2	16312	386284
72	9.5503	03785	783639	2	16396	034892
71	9.5500	87389	748747	2	16479	769593
21 70	9.5498	70909	979154	.0002	16563	590503
69	9.5496	54346	388651	2	16647	497741
68	9.5494	37698	890910	2	16731	491421
67	9.5492	20967	399489	2	16815	571663
66	9.5490	04151	827826	2	16899	738581
21 65	9.5487	87252	089245	.0002	16983	992297
64	9.5485	70268	096948	2	17068	332926
63	9.5483	53199	764022	2	17152	760585
62	9.5481	36047	003437	2	17237	275395
61	9.5479	18809	728042	2	17321	877474
21 60	9.5477	01487	850568	.0002	17406	566938

## Log Tangents

c	log. tan.			$\Delta^1$		
21 60	9.5477	01487	850568	.0002	17406	566938
59	9.5474	84081	283630	2	17491	343910
58	9.5472	66589	939720	2	17576	208506
57	9.5470	49013	731214	2	17661	160847
56	9.5468	31352	570367	2	17746	201051
21 55	9.5466	13606	369316	.0002	17831	329240
54	9.5463	95775	040076	2	17916	545532
53	9.5461	77858	494544	2	18001	850049
52	9.5459	59856	644495	2	18087	242910
51	9.5457	41769	401585	2	18172	724237
21 50	9.5455	23596	677348	.0002	18258	294150
49	9.5453	05338	383198	2	18343	952771
48	9.5450	86994	430427	2	18429	700220
47	9.5448	68564	730207	2	18515	536621
46	9.5446	50049	193586	2	18601	462093
21 45	9.5444	31447	731493	.0002	18687	476760
44	9.5442	12760	254733	2	18773	580744
43	9.5439	93986	673989	2	18859	774168
42	9.5437	75126	899821	2	18946	057153
41	9.5435	56180	842668	2	19032	429823
21 40	9.5433	37148	412845	.0002	19118	892303
39	9.5431	18029	520542	2	19205	444714
38	9.5428	98824	075828	2	19292	087180
37	9.5426	79531	988648	2	19378	819826
36	9.5424	60153	168822	2	19465	642776
21 35	9.5422	40687	526046	.0002	19552	556155
34	9.5420	21134	969891	2	19639	560084
33	9.5418	01495	409807	2	19726	654693
32	9.5415	81768	755114	2	19813	840105
31	9.5413	61954	915009	2	19901	116443
21 30	9.5411	42053	798566	.0002	19988	483836
29	9.5409	22065	314730	2	20075	942409
28	9.5407	01989	372321	2	20163	492287
27	9.5404	81825	880034	2	20251	133596
26	9.5402	61574	746438	2	20338	866465
21 25	9.5400	41235	879973	.0002	20426	691018
24	9.5398	20809	188955	2	20514	607384
23	9.5396	00294	581571	2	20602	615690
22	9.5393	79691	965881	2	20690	716062
21	9.5391	59001	249819	2	20778	908629
21 20	9.5389	38222	341190	.0002	20867	193518

## Log Tangents

c	log. tan.			$\Delta^1$		
21 20	9.5389	38222	341190	.0002	20867	193518
19	9.5387	17355	147672	2	20955	570860
18	9.5384	96399	576812	2	21044	040780
17	9.5382	75355	536032	2	21132	603408
16	9.5380	54222	932624	2	21221	258874
21 15	9.5378	33001	673750	.0002	21310	007306
14	9.5376	11691	666444	2	21398	848834
13	9.5373	90292	817610	2	21487	783587
12	9.5371	68805	034023	2	21576	811696
11	9.5369	47228	222327	2	21665	933291
21 10	9.5367	25562	289036	.0002	21755	148501
09	9.5365	03807	140535	2	21844	457460
08	9.5362	81962	683075	2	21933	860294
07	9.5360	60028	822781	2	22023	357139
06	9.5358	38005	465642	2	22112	948125
21 05	9.5356	15892	517517	.0002	22202	633381
04	9.5353	93689	884136	2	22292	413042
03	9.5351	71397	471094	2	22382	287240
02	9.5349	49015	183854	2	22472	256106
01	9.5347	26542	927748	2	22562	319775
21 00	9.5345	03980	607973	.0002	22652	478376
20 99	9.5342	81328	129597	2	22742	732047
98	9.5340	58585	397550	2	22833	080918
97	9.5338	35752	316632	2	22923	525124
96	9.5336	12828	791508	2	23014	064799
20 95	9.5333	89814	726709	.0002	23104	700078
94	9.5331	66710	026631	2	23195	431093
93	9.5329	43514	595538	2	23286	257982
92	9.5327	20228	337556	2	23377	180878
91	9.5324	96851	156678	2	23468	199917
20 90	9.5322	73382	956761	.0002	23559	315233
89	9.5320	49823	641528	2	23650	526965
88	9.5318	26173	114563	2	23741	835247
87	9.5316	02431	279316	2	23833	240214
86	9.5313	78598	039102	2	23924	742005
20 85	9.5311	54673	297097	.0002	24016	340757
84	9.5309	30656	956340	2	24108	036605
83	9.5307	06548	919735	2	24199	829688
82	9.5304	82349	090047	2	24291	720142
81	9.5302	58057	369905	2	24383	708108
20 80	9.5300	33673	661797	.0002	24475	793722

## Log Tangents

c	log. tan.			$\Delta^1$		
20 80	9.5300	33673	661797	.0002	24475	793722
79	9.5298	09197	868075	2	24567	977121
78	9.5295	84629	890954	2	24660	258448
77	9.5293	59969	632506	2	24752	637838
76	9.5291	35216	994668	2	24845	115431
20 75	9.5289	10371	879237	.0002	24937	691369
74	9.5286	85434	187868	2	25030	365790
73	9.5284	60403	822078	2	25123	138833
72	9.5282	35280	683245	2	25216	010641
71	9.5280	10064	672604	2	25308	981351
20 70	9.5277	84755	691253	.0002	25402	051109
69	9.5275	59353	640144	2	25495	220051
68	9.5273	33858	420093	2	25588	488321
67	9.5271	08269	931772	2	25681	856061
66	9.5268	82588	075711	2	25775	323413
20 65	9.5266	56812	752298	.0002	25868	890517
64	9.5264	30943	861781	2	25962	557518
63	9.5262	04981	304263	2	26056	324559
62	9.5259	78924	979704	2	26150	191781
61	9.5257	52774	787923	2	26244	159329
20 60	9.5255	26530	628594	.0002	26338	227347
59	9.5253	00192	401247	2	26432	395976
58	9.5250	73760	005271	2	26526	665365
57	9.5248	47233	339906	2	26621	035655
56	9.5246	20612	304251	2	26715	506991
20 55	9.5243	93896	797260	.0002	26810	079519
54	9.5241	67086	717741	2	26904	753386
53	9.5239	40181	964355	2	26999	528733
52	9.5237	13182	435622	2	27094	405711
51	9.5234	86088	029911	2	27189	384463
20 50	9.5232	58898	645448	.0002	27284	465137
49	9.5230	31614	180311	2	27379	647879
48	9.5228	04234	532432	2	27474	932837
47	9.5225	76759	599595	2	27570	320157
46	9.5223	49189	279438	2	27665	809987
20 45	9.5221	21523	469451	.0002	27761	402477
44	9.5218	93762	066974	2	27857	097773
43	9.5216	65904	969201	2	27952	896023
42	9.5214	37952	073178	2	28048	797379
41	9.5212	09903	275799	2	28144	801986
20 40	9.5209	81758	473813	.0002	28240	909998

## Log Tangents

c	log. tan.			$\Delta^1$		
20 40	9.5209	81758	473813	.0002	28240	909998
39	9.5207	53517	563815	2	28337	121560
38	9.5205	25180	442255	2	28433	436826
37	9.5202	96747	005429	2	28529	855944
36	9.5200	68217	149485	2	28626	379065
20 35	9.5198	39590	770420	.0002	28723	006340
34	9.5196	10867	764080	2	28819	737921
33	9.5193	82048	026159	2	28916	573958
32	9.5191	53131	452201	2	29013	514604
31	9.5189	24117	937597	2	29110	560011
20 30	9.5186	95007	377586	.0002	29207	710331
29	9.5184	65799	667255	2	29304	965717
28	9.5182	36494	701538	2	29402	326321
27	9.5180	07092	375217	2	29499	792298
26	9.5177	77592	582919	2	29597	363801
20 25	9.5175	47995	219118	.0002	29695	040982
24	9.5173	18300	178136	2	29792	823999
23	9.5170	88507	354137	2	29890	713003
22	9.5168	58616	641134	2	29988	708151
21	9.5166	28627	932983	2	30086	809597
20 20	9.5163	98541	123386	.0002	30185	017498
19	9.5161	68356	105888	2	30283	332007
18	9.5159	38072	773881	2	30381	753283
17	9.5157	07691	020598	2	30480	281480
16	9.5154	77210	739118	2	30578	916757
20 15	9.5152	46631	822361	.0002	30677	659270
14	9.5150	15954	163091	2	30776	509175
13	9.5147	85177	653916	2	30875	466632
12	9.5145	54302	187284	2	30974	531797
11	9.5143	23327	655487	2	31073	704829
20 10	9.5140	92253	950658	.0002	31172	985887
09	9.5138	61080	964771	2	31272	375130
08	9.5136	29808	589641	2	31371	872717
07	9.5133	98436	716924	2	31471	478806
06	9.5131	66965	238118	2	31571	193558
20 05	9.5129	35394	044560	.0002	31671	017136
04	9.5127	03723	027424	2	31770	949695
03	9.5124	71952	077729	2	31870	991401
02	9.5122	40081	086328	2	31971	142411
01	9.5120	08109	943917	2	32071	402890
20 00	9.5117	76038	541027	.0002	32171	772997

## Log Tangents

c	log. tan.			$\Delta^1$		
20 00	9.5117	76038	541027	.0002	32171	772997
19 99	9.5115	43866	768030	2	32272	252896
98	9.5113	11594	515134	2	32372	842748
97	9.5110	79221	672386	2	32473	542718
96	9.5108	46748	129668	2	32574	352966
19 95	9.5106	14173	776702	.0002	32675	273659
94	9.5103	81498	503043	2	32776	304956
93	9.5101	48722	198087	2	32877	447027
92	9.5099	15844	751060	2	32978	700032
91	9.5096	82866	051028	2	33080	064137
19 90	9.5094	49785	986891	.0002	33181	539508
89	9.5092	16604	447383	2	33283	126308
88	9.5089	83321	321075	2	33384	824707
87	9.5087	49936	496368	2	33486	634867
86	9.5085	16449	861501	2	33588	556956
19 85	9.5082	82861	304545	.0002	33690	591141
84	9.5080	49170	713404	2	33792	737589
83	9.5078	15377	975815	2	33894	996467
82	9.5075	81482	979348	2	33997	367944
81	9.5073	47485	611404	2	34099	852186
19 80	9.5071	13385	759218	.0002	34202	449364
79	9.5068	79183	309854	2	34305	159645
78	9.5066	44878	150209	2	34407	983198
77	9.5064	10470	167011	2	34510	920194
76	9.5061	75959	246817	2	34613	970802
19 75	9.5059	41345	276015	.0002	34717	135192
74	9.5057	06628	140823	2	34820	413535
73	9.5054	71807	727288	2	34923	806002
72	9.5052	36883	921286	2	35027	312763
71	9.5050	01856	608523	2	35130	933991
19 70	9.5047	66725	674532	.0002	35234	669858
69	9.5045	31491	004674	2	35338	520535
68	9.5042	96152	484139	2	35442	486195
67	9.5040	60709	997944	2	35546	567013
66	9.5038	25163	430931	2	35650	763158
19 65	9.5035	89512	667773	.0002	35755	074809
64	9.5033	53757	592964	2	35859	502137
63	9.5031	17898	090827	2	35964	045315
62	9.5028	81934	045512	2	36068	704522
61	9.5026	45865	340990	2	36173	479929
19 60	9.5024	09691	861061	.0002	36278	371715

## Log Tangents

c	log. tan.			$\Delta^1$		
19 60	9.5024	09691	861061	.0002	36278	371715
59	9.5021	73413	489346	2	36383	380052
58	9.5019	37030	109294	2	36488	505120
57	9.5017	00541	604174	2	36593	747093
56	9.5014	63947	857081	2	36699	106149
19 55	9.5012	27248	750932	.0002	36804	582466
54	9.5009	90444	168466	2	36910	176219
53	9.5007	53533	992247	2	37015	887589
52	9.5005	16518	104658	2	37121	716753
51	9.5002	79396	387905	2	37227	663890
19 50	9.5000	42168	724015	.0002	37333	729179
49	9.4998	04834	994836	2	37439	912799
48	9.4995	67395	082037	2	37546	214932
47	9.4993	29848	867105	2	37652	635755
46	9.4990	92196	231350	2	37759	175452
19 45	9.4988	54437	055898	.0002	37865	834200
44	9.4986	16571	221698	2	37972	612185
43	9.4983	78598	609513	2	38079	509585
42	9.4981	40519	099928	2	38186	526584
41	9.4979	02332	573344	2	38293	663364
19 40	9.4976	64038	909980	.0002	38400	920108
39	9.4974	25637	989872	2	38508	296999
38	9.4971	87129	692873	2	38615	794220
37	9.4969	48513	898653	2	38723	411957
36	9.4967	09790	486696	2	38831	150393
19 35	9.4964	70959	336303	.0002	38939	009712
34	9.4962	32020	326591	2	39046	990100
33	9.4959	92973	336491	2	39155	091744
32	9.4957	53818	244747	2	39263	314827
31	9.4955	14554	929920	2	39371	659538
19 30	9.4952	75183	270382	.0002	39480	126062
29	9.4950	35703	144320	2	39588	714587
28	9.4947	96114	429733	2	39697	425300
27	9.4945	56417	004433	2	39806	258388
26	9.4943	16610	746045	2	39915	214042
19 25	9.4940	76695	532003	.0002	40024	292448
24	9.4938	36671	239555	2	40133	493797
23	9.4935	96537	745758	2	40242	818275
22	9.4933	56294	927483	2	40352	266077
21	9.4931	15942	661406	2	40461	837389
19 20	9.4928	75480	824017	.0002	40571	532404



## Log Tangents

c	log. tan.			$\Delta^1$		
19 20	9.4928	75480	824017	.0002	40571	532404
19 19	9.4926	34909	291613	2	40681	351311
19 18	9.4923	94227	940302	2	40791	294304
19 17	9.4921	53436	645998	2	40901	361573
19 16	9.4919	12535	284425	2	41011	553310
19 15	9.4916	71523	731115	.0002	41121	869709
19 14	9.4914	30401	861406	2	41232	310962
19 13	9.4911	89169	550444	2	41342	877264
19 12	9.4909	47826	673180	2	41453	568806
19 11	9.4907	06373	104374	2	41564	385786
19 10	9.4904	64808	718588	.0002	41675	328395
19 09	9.4902	23133	390193	2	41786	396830
19 08	9.4899	81346	993363	2	41897	591287
19 07	9.4897	39449	402076	2	42008	911961
19 06	9.4894	97440	490115	2	42120	359049
19 05	9.4892	55320	131066	.0002	42231	932745
19 04	9.4890	13088	198321	2	42343	633251
19 03	9.4887	70744	565070	2	42455	460761
19 02	9.4885	28289	104309	2	42567	415473
19 01	9.4882	85721	688836	2	42679	497588
19 00	9.4880	43042	191248	.0002	42791	707302
18 99	9.4878	00250	483946	2	42904	044816
18 98	9.4875	57346	439130	2	43016	510328
18 97	9.4873	14329	928802	2	43129	104041
18 96	9.4870	71200	824761	2	43241	826153
18 95	9.4868	27958	998608	.0002	43354	676864
18 94	9.4865	84604	321744	2	43467	656380
18 93	9.4863	41136	665364	2	43580	764897
18 92	9.4860	97555	900467	2	43694	002621
18 91	9.4858	53861	897846	2	43807	369755
18 90	9.4856	10054	528091	.0002	43920	866499
18 89	9.4853	66133	661592	2	44034	493058
18 88	9.4851	22099	168534	2	44148	249638
18 87	9.4848	77950	918896	2	44262	136440
18 86	9.4846	33688	782456	2	44376	153672
18 85	9.4843	89312	628784	.0002	44490	301536
18 84	9.4841	44822	327248	2	44604	580240
18 83	9.4839	00217	747008	2	44718	989989
18 82	9.4836	55498	757019	2	44833	530991
18 81	9.4834	10665	226028	2	44948	203451
18 80	9.4831	65717	022577	.0002	45063	007578

## Log Tangents

c	log. tan.			$\Delta^1$		
18 80	9.4831	65717	022577	.0002	45063	007578
79	9.4829	20654	014999	2	45177	943580
78	9.4826	75476	071419	2	45293	011664
77	9.4824	30183	059755	2	45408	212040
76	9.4821	84774	847715	2	45523	544916
18 75	9.4819	39251	302799	.0002	45639	010502
74	9.4816	93612	292297	2	45754	609010
73	9.4814	47857	683287	2	45870	340649
72	9.4812	01987	342638	2	45986	205630
71	9.4809	56001	137008	2	46102	204163
18 70	9.4807	09898	932845	.0002	46218	336464
69	9.4804	63680	596381	2	46334	602742
68	9.4802	17345	993639	2	46451	003210
67	9.4799	70894	990429	2	46567	538084
66	9.4797	24327	452345	2	46684	207575
18 65	9.4794	77643	244770	.0002	46801	011897
64	9.4792	30842	232873	2	46917	951268
63	9.4789	83924	281605	2	47035	025899
62	9.4787	36889	255706	2	47152	236009
61	9.4784	89737	019697	2	47269	581813
18 60	9.4782	42467	437884	.0002	47387	063526
59	9.4779	95080	374358	2	47504	681366
58	9.4777	47575	692992	2	47622	435553
57	9.4774	99953	257439	2	47740	326300
56	9.4772	52212	931139	2	47858	353830
18 55	9.4770	04354	577309	.0002	47976	518360
54	9.4767	56378	058949	2	48094	820108
53	9.4765	08283	238841	2	48213	259297
52	9.4762	60069	979544	2	48331	836144
51	9.4760	11738	143400	2	48450	550873
18 50	9.4757	63287	592527	.0002	48569	403703
49	9.4755	14718	188824	2	48688	394856
48	9.4752	66029	793968	2	48807	524555
47	9.4750	17222	269413	2	48926	793023
46	9.4747	68295	476390	2	49046	200482
18 45	9.4745	19249	275908	.0002	49165	747156
44	9.4742	70083	528752	2	49285	433271
43	9.4740	20798	095481	2	49405	259049
42	9.4737	71392	836432	2	49525	224717
41	9.4735	21867	611715	2	49645	330499
18 40	9.4732	72222	281216	.0002	49765	576624

## Log Tangents

c	log. tan.			$\Delta^1$		
18 40	9.4732	72222	281216	.0002	49765	576624
39	9.4730	22456	704592	2	49885	963315
38	9.4727	72570	741277	2	50006	490803
37	9.4725	22564	250474	2	50127	159311
36	9.4722	72437	091163	2	50247	969072
18 35	9.4720	22189	122091	.0002	50368	920312
34	9.4717	71820	201779	2	50490	013260
33	9.4715	21330	188519	2	50611	248146
32	9.4712	70718	940373	2	50732	625200
31	9.4710	19986	315173	2	50854	144654
18 30	9.4707	69132	170519	.0002	50975	806738
29	9.4705	18156	363781	2	51097	611683
28	9.4702	67058	752098	2	51219	559722
27	9.4700	15839	192376	2	51341	651088
26	9.4697	64497	541288	2	51463	886013
18 25	9.4695	13033	655275	.0002	51586	264733
24	9.4692	61447	390542	2	51708	787479
23	9.4690	09738	603063	2	51831	454489
22	9.4687	57907	148574	2	51954	265995
21	9.4685	05952	882579	2	52077	222236
18 20	9.4682	53875	660343	.0002	52200	323445
19	9.4680	01675	336898	2	52323	569862
18	9.4677	49351	767036	2	52446	961723
17	9.4674	96904	805313	2	52570	499264
16	9.4672	44334	306049	2	52694	182726
18 15	9.4669	91640	123323	.0002	52818	012348
14	9.4667	38822	110975	2	52941	988367
13	9.4664	85880	122608	2	53066	111025
12	9.4662	32814	011583	2	53190	380562
11	9.4659	79623	631021	2	53314	797219
18 10	9.4657	26308	833802	.0002	53439	361237
09	9.4654	72869	472565	2	53564	072859
08	9.4652	19305	399706	2	53688	932327
07	9.4649	65616	467379	2	53813	939884
06	9.4647	11802	527495	2	53939	095775
18 05	9.4644	57863	431720	.0002	54064	400243
04	9.4642	03799	031477	2	54189	853533
03	9.4639	49609	177944	2	54315	455891
02	9.4636	95293	722053	2	54441	207563
01	9.4634	40852	514490	2	54567	108793
18 00	9.4631	86285	405697	.0002	54693	159831

## Log Tangents

c	log. tan.			$\Delta^1$		
18 00	9.4631	86285	405697	.0002	54693	159831
17 99	9.4629	31592	245866	2	54819	360924
98	9.4626	76772	884942	2	54945	712319
97	9.4624	21827	172623	2	55072	214265
96	9.4621	66754	958358	2	55198	867011
17 95	9.4619	11556	091347	.0002	55325	670808
94	9.4616	56230	420539	2	55452	625904
93	9.4614	00777	794635	2	55579	732554
92	9.4611	45198	062081	2	55706	991004
91	9.4608	89491	071077	2	55834	401511
17 90	9.4606	33656	669566	.0002	55961	964324
89	9.4603	77694	705242	2	56089	679698
88	9.4601	21605	025544	2	56217	547886
87	9.4598	65387	477658	2	56345	569143
86	9.4596	09041	908515	2	56473	743723
17 85	9.4593	52568	164792	.0002	56602	071882
84	9.4590	95966	092910	2	56730	553875
83	9.4588	39235	539035	2	56859	189960
82	9.4585	82376	349075	2	56987	980394
81	9.4583	25388	368681	2	57116	925434
17 80	9.4580	68271	443247	.0002	57246	025337
79	9.4578	11025	417910	2	57375	280365
78	9.4575	53650	137545	2	57504	690776
77	9.4572	96145	446769	2	57634	256830
76	9.4570	38511	189939	2	57763	978786
17 75	9.4567	80747	211153	.0002	57893	856909
74	9.4565	22853	354244	2	58023	891458
73	9.4562	64829	462786	2	58154	082695
72	9.4560	06675	380091	2	58284	430886
71	9.4557	48390	949205	2	58414	936292
17 70	9.4554	89976	012913	.0002	58545	599177
69	9.4552	31430	413736	2	58676	419808
68	9.4549	72753	993928	2	58807	398449
67	9.4547	13946	595479	2	58938	535366
66	9.4544	55008	060113	2	59069	830826
17 65	9.4541	95938	229287	.0002	59201	285097
64	9.4539	36736	944190	2	59332	898444
63	9.4536	77404	045746	2	59464	671138
62	9.4534	17939	374608	2	59596	603449
61	9.4531	58342	771159	2	59728	695643
17 60	9.4528	98614	075516	.0002	59860	947993

## Log Tangents

c	log. tan.			$\Delta^1$		
17 60	9.4528	98614	075516	.0002	59860	947993
59	9.4526	38753	127523	2	59993	360770
58	9.4523	78759	766753	2	60125	934244
57	9.4521	18633	832509	2	60258	668689
56	9.4518	58375	163820	2	60391	564375
17 55	9.4515	97983	599445	.0002	60524	621579
54	9.4513	37458	977866	2	60657	840571
53	9.4510	76801	137295	2	60791	221629
52	9.4508	16009	915666	2	60924	765027
51	9.4505	55085	150639	2	61058	471041
17 50	9.4502	94026	679598	.0002	61192	339947
49	9.4500	32834	339651	2	61326	372023
48	9.4497	71507	967628	2	61460	567546
47	9.4495	10047	400082	2	61594	926794
46	9.4492	48452	473288	2	61729	450049
17 45	9.4489	86723	023239	.0002	61864	137586
44	9.4487	24858	885653	2	61998	989690
43	9.4484	62859	895963	2	62134	006640
42	9.4482	00725	889323	2	62269	188717
41	9.4479	38456	700606	2	62404	536203
17 40	9.4476	76052	164403	.0002	62540	049384
39	9.4474	13512	115019	2	62675	728539
38	9.4471	50836	386480	2	62811	573957
37	9.4468	88024	812523	2	62947	585920
36	9.4466	25077	226603	2	63083	764714
17 35	9.4463	61993	461889	.0002	63220	110625
34	9.4460	98773	351264	2	63356	623942
33	9.4458	35416	727322	2	63493	304950
32	9.4455	71923	422372	2	63630	153937
31	9.4453	08293	268435	2	63767	171196
17 30	9.4450	44526	097239	.0002	63904	357011
29	9.4447	80621	740228	2	64041	711676
28	9.4445	16580	028552	2	64179	235480
27	9.4442	52400	793072	2	64316	928717
26	9.4439	88083	864355	2	64454	791677
17 25	9.4437	23629	072678	.0002	64592	824653
24	9.4434	59036	248025	2	64731	027940
23	9.4431	94305	220085	2	64869	401831
22	9.4429	29435	818254	2	65007	946623
21	9.4426	64427	871631	2	65146	662608
17 20	9.4423	99281	209023	.0002	65285	550086

## Log Tangents

c	log. tan.			$\Delta^1$		
17 20	9.4423	99281	209023	.0002	65285	550086
19	9.4421	33995	658937	2	65424	609353
18	9.4418	68571	049584	2	65563	840705
17	9.4416	03007	208879	2	65703	244443
16	9.4413	37303	964436	2	65842	820866
17 15	9.4410	71461	143570	.0002	65982	570271
14	9.4408	05478	573299	2	66122	492961
13	9.4405	39356	080338	2	66262	589238
12	9.4402	73093	491100	2	66402	859401
11	9.4400	06690	631699	2	66543	303756
17 10	9.4397	40147	327943	.0002	66683	922603
09	9.4394	73463	405340	2	66824	716249
08	9.4392	06638	689091	2	66965	684998
07	9.4389	39673	004093	2	67106	829154
06	9.4386	72566	174939	2	67248	149026
17 05	9.4384	05318	025913	.0002	67389	644918
04	9.4381	37928	380995	2	67531	317139
03	9.4378	70397	063856	2	67673	165999
02	9.4376	02723	897857	2	67815	191804
01	9.4373	34908	706053	2	67957	394867
17 00	9.4370	66951	311186	.0002	68099	775496
16 99	9.4367	98851	535690	2	68242	334003
98	9.4365	30609	201687	2	68385	070702
97	9.4362	62224	130985	2	68527	985904
96	9.4359	93696	145081	2	68671	079922
16 95	9.4357	25025	065159	.0002	68814	353071
94	9.4354	56210	712088	2	68957	805667
93	9.4351	87252	906421	2	69101	438025
92	9.4349	18151	468396	2	69245	250461
91	9.4346	48906	217935	2	69389	243293
16 90	9.4343	79516	974642	.0002	69533	416838
89	9.4341	09983	557804	2	69677	771417
88	9.4338	40305	786387	2	69822	307347
87	9.4335	70483	479040	2	69967	024950
86	9.4333	00516	454090	2	70111	924545
16 85	9.4330	30404	529545	.0002	70257	006458
84	9.4327	60147	523087	2	70402	271006
83	9.4324	89745	252081	2	70547	718517
82	9.4322	19197	533564	2	70693	349313
81	9.4319	48504	184251	2	70839	163720
16 80	9.4316	77665	020531	.0002	70985	162061

## Log Tangents

c	log. tan.			$\Delta^1$		
16 80	9.4316	77665	020531	.0002	70985	162061
79	9.4314	06679	858470	2	71131	344666
78	9.4311	35548	513804	2	71277	711861
77	9.4308	64270	801943	2	71424	263972
76	9.4305	92846	537971	2	71571	001331
16 75	9.4303	21275	536640	.0002	71717	924265
74	9.4300	49557	612375	2	71865	033107
73	9.4297	77692	579268	2	72012	328185
72	9.4295	05680	251083	2	72159	809833
71	9.4292	33520	441250	2	72307	478384
16 70	9.4289	61212	962866	.0002	72455	334171
69	9.4286	88757	628695	2	72603	377528
68	9.4284	16154	251167	2	72751	608790
67	9.4281	43402	642377	2	72900	028294
66	9.4278	70502	614083	2	73048	636376
16 65	9.4275	97453	977707	.0002	73197	433374
64	9.4273	24256	544333	2	73346	419627
63	9.4270	50910	124706	2	73495	595472
62	9.4267	77414	529234	2	73644	961252
61	9.4265	03769	567982	2	73794	517305
16 60	9.4262	29975	050677	.0002	73944	263976
59	9.4259	56030	786701	2	74094	201603
58	9.4256	81936	585098	2	74244	330534
57	9.4254	07692	254564	2	74394	651111
56	9.4251	33297	603453	2	74545	163678
16 55	9.4248	58752	439775	.0002	74695	868583
54	9.4245	84056	571192	2	74846	766171
53	9.4243	09209	805021	2	74997	856791
52	9.4240	34211	948230	2	75149	140790
51	9.4237	59062	807440	2	75300	618517
16 50	9.4234	83762	188923	.0002	75452	290324
49	9.4232	08309	898599	2	75604	156561
48	9.4229	32705	742038	2	75756	217578
47	9.4226	56949	524460	2	75908	473731
46	9.4223	81041	050729	2	76060	925370
16 45	9.4221	04980	125359	.0002	76213	572852
44	9.4218	28766	552507	2	76366	416530
43	9.4215	52400	135977	2	76519	456763
42	9.4212	75880	679214	2	76672	693905
41	9.4209	99207	985309	2	76826	128315
16 40	9.4207	22381	856994	.0002	76979	760351

## Log Tangents

c	log. tan.			$\Delta^1$		
16 40	9.4207	22381	856994	.0002	76979	760351
39	9.4204	45402	096643	2	77133	590375
38	9.4201	68268	506268	2	77287	618745
37	9.4198	90980	887523	2	77441	845823
36	9.4196	13539	041700	2	77596	271971
16 35	9.4193	35942	769729	.0002	77750	897552
34	9.4190	58191	872177	2	77905	722931
33	9.4187	80286	149246	2	78060	748473
32	9.4185	02225	400773	2	78215	974541
31	9.4182	24009	426232	2	78371	401506
16 30	9.4179	45638	024726	.0002	78527	029731
29	9.4176	67110	994995	2	78682	859589
28	9.4173	88428	135406	2	78838	891446
27	9.4171	09589	243960	2	78995	125673
26	9.4168	30594	118287	2	79151	562643
16 25	9.4165	51442	555644	.0002	79308	202726
24	9.4162	72134	352918	2	79465	046296
23	9.4159	92669	306622	2	79622	093728
22	9.4157	13047	212894	2	79779	345394
21	9.4154	33267	867500	2	79936	801673
16 20	9.4151	53331	065827	.0002	80094	462939
19	9.4148	73236	602888	2	80252	329573
18	9.4145	92984	273315	2	80410	401950
17	9.4143	12573	871365	2	80568	680453
16	9.4140	32005	190912	2	80727	165459
16 15	9.4137	51278	025453	.0002	80885	857352
14	9.4134	70392	168101	2	81044	756514
13	9.4131	89347	411587	2	81203	863328
12	9.4129	08143	548259	2	81363	178178
11	9.4126	26780	370081	2	81522	701449
16 10	9.4123	45257	668632	.0002	81682	433529
09	9.4120	63575	235103	2	81842	374803
08	9.4117	81732	860300	2	82002	525660
07	9.4114	99730	334640	2	82162	886490
06	9.4112	17567	448150	2	82323	457682
16 05	9.4109	35243	990468	.0002	82484	239627
04	9.4106	52759	750841	2	82645	232718
03	9.4103	70114	518123	2	82806	437347
02	9.4100	87308	080776	2	82967	853909
01	9.4098	04340	226867	2	83129	482798
16 00	9.4095	21210	744069	.0002	83291	324411



## Log Tangents

c	log. tan.			$\Delta^1$		
16 00	9.4095	21210	744069	.0002	83291	324411
15 99	9.4092	37919	419658	2	83453	379143
98	9.4089	54466	040515	2	83615	647394
97	9.4086	70850	393121	2	83778	129563
96	9.4083	87072	263558	2	83940	826049
15 95	9.4081	03131	437509	.0002	84103	737253
94	9.4078	19027	700256	2	84266	863577
93	9.4075	34760	836679	2	84430	205425
92	9.4072	50330	631254	2	84593	763199
91	9.4069	65736	868055	2	84757	537306
15 90	9.4066	80979	330749	.0002	84921	528152
89	9.4063	96057	802597	2	85085	736142
88	9.4061	10972	066455	2	85250	161687
87	9.4058	25721	904768	2	85414	805193
86	9.4055	40307	099575	2	85579	667072
15 85	9.4052	54727	432503	.0002	85744	747737
84	9.4049	68982	684766	2	85910	047596
83	9.4046	83072	637170	2	86075	567065
82	9.4043	96997	070105	2	86241	306558
81	9.4041	10755	763547	2	86407	266490
15 80	9.4038	24348	497057	.0002	86573	447278
79	9.4035	37775	049779	2	86739	849339
78	9.4032	51035	200440	2	86906	473092
77	9.4029	64128	727348	2	87073	318956
76	9.4026	77055	408392	2	87240	387351
15 75	9.4023	89815	021041	.0002	87407	678702
74	9.4021	02407	342339	2	87575	193428
73	9.4018	14832	148911	2	87742	931954
72	9.4015	27089	216957	2	87910	894707
71	9.4012	39178	322250	2	88079	082110
15 70	9.4009	51099	240140	.0002	88247	494593
69	9.4006	62851	745547	2	88416	132583
68	9.4003	74435	612964	2	88584	996508
67	9.4000	85850	616456	2	88754	086800
66	9.3997	97096	529656	2	88923	403891
15 65	9.3995	08173	125765	.0002	89092	948213
64	9.3992	19080	177552	2	89262	720199
63	9.3989	29817	457353	2	89432	720285
62	9.3986	40384	737068	2	89602	948906
61	9.3983	50781	788162	2	89773	406500
15 60	9.3980	61008	381662	.0002	89944	093506

## Log Tangents

c	log. tan.			$\Delta^1$
15 60	9.3980	61008	381662	.0002 89944 093506
59	9.3977	71064	288156	2 90115 010360
58	9.3974	80949	277796	2 90286 157506
57	9.3971	90663	120290	2 90457 535385
56	9.3969	00205	584905	2 90629 144437
15 55	9.3966	09576	440468	.0002 90800 985110
54	9.3963	18775	455358	2 90973 057846
53	9.3960	27802	397512	2 91145 363093
52	9.3957	36657	034419	2 91317 901297
51	9.3954	45339	133122	2 91490 672907
15 50	9.3951	53848	460215	.0002 91663 678372
49	9.3948	62184	781843	2 91836 918146
48	9.3945	70347	863697	2 92010 392676
47	9.3942	78337	471021	2 92184 102418
46	9.3939	86153	368603	2 92358 047827
15 45	9.3936	93795	320776	.0002 92532 229358
44	9.3934	01263	091418	2 92706 647466
43	9.3931	08556	443952	2 92881 302610
42	9.3928	15675	141342	2 93056 195250
41	9.3925	22618	946092	2 93231 325845
15 40	9.3922	29387	620247	.0002 93406 694857
39	9.3919	35980	925390	2 93582 302749
38	9.3916	42398	622641	2 93758 149983
37	9.3913	48640	472658	2 93934 237028
36	9.3910	54706	235630	2 94110 564345
15 35	9.3907	60595	671285	.0002 94287 132407
34	9.3904	66308	538878	2 94463 941678
33	9.3901	71844	597200	2 94640 992631
32	9.3898	77203	604569	2 94818 285736
31	9.3895	82385	318833	2 94995 821465
15 30	9.3892	87389	497368	.0002 95173 600294
29	9.3889	92215	897074	2 95351 622694
28	9.3886	96864	274380	2 95529 889145
27	9.3884	01334	385235	2 95708 400122
26	9.3881	05625	985113	2 95887 156104
15 25	9.3878	09738	829009	.0002 96066 157572
24	9.3875	13672	671437	2 96245 405006
23	9.3872	17427	266431	2 96424 898889
22	9.3869	21002	367542	2 96604 639705
21	9.3866	24397	727837	2 96784 627937
15 20	9.3863	27613	099900	.0002 96964 864075

## Log Tangents

c	log. tan.			$\Delta^1$		
15 20	9.3863	27613	099900	.0002	96964	864075
19	9.3860	30648	235825	2	97145	348602
18	9.3857	33502	887223	2	97326	082011
17	9.3854	36176	805212	2	97507	064789
16	9.3851	38669	740423	2	97688	297429
15 15	9.3848	40981	442994	.0002	97869	780424
14	9.3845	43111	662570	2	98051	514268
13	9.3842	45060	148302	2	98233	499453
12	9.3839	46826	648849	2	98415	736481
11	9.3836	48410	912368	2	98598	225846
15 10	9.3833	49812	686522	.0002	98780	968049
09	9.3830	51031	718473	2	98963	963591
08	9.3827	52067	754882	2	99147	212971
07	9.3824	52920	541911	2	99330	716696
06	9.3821	53589	825215	2	99514	475269
15 05	9.3818	54075	349946	.0002	99698	489195
04	9.3815	54376	860751	2	99882	758983
03	9.3812	54494	101768	3	00067	285140
02	9.3809	54426	816628	3	00252	068178
01	9.3806	54174	748450	3	00437	108607
15 00	9.3803	53737	639843	.0003	00622	406939
14 99	9.3800	53115	232904	3	00807	963690
98	9.3797	52307	269214	3	00993	779374
97	9.3794	51313	489840	3	01179	854509
96	9.3791	50133	635331	3	01366	189612
14 95	9.3788	48767	445719	.0003	01552	785204
94	9.3785	47214	660515	3	01739	641804
93	9.3782	45475	018711	3	01926	759938
92	9.3779	43548	258773	3	02114	140125
91	9.3776	41434	118648	3	02301	782894
14 90	9.3773	39132	335754	.0003	02489	688770
89	9.3770	36642	646984	3	02677	858282
88	9.3767	33964	788702	3	02866	291959
87	9.3764	31098	496743	3	03054	990331
86	9.3761	28043	506412	3	03243	953932
14 85	9.3758	24799	552480	.0003	03433	183294
84	9.3755	21366	369186	3	03622	678955
83	9.3752	17743	690231	3	03812	441448
82	9.3749	13931	248783	3	04002	471314
81	9.3746	09928	777469	3	04192	769092
14 80	9.3743	05736	008377	.0003	04383	335321

## Log Tangents

c	log. tan.			$\Delta^1$		
14 80	9.3743	05736	008377	.0003	04383	335321
79	9.3740	01352	673056	3	04574	170546
78	9.3736	96778	502510	3	04765	275310
77	9.3733	92013	227200	3	04956	650159
76	9.3730	87056	577041	3	05148	295639
14 75	9.3727	81908	281402	.0003	05340	212298
74	9.3724	76568	069104	3	05532	400687
73	9.3721	71035	668417	3	05724	861359
72	9.3718	65310	807058	3	05917	594862
71	9.3715	59393	212196	3	06110	601756
14 70	9.3712	53282	610440	.0003	06303	882593
69	9.3709	46978	727847	3	06497	437932
68	9.3706	40481	289915	3	06691	268331
67	9.3703	33790	021584	3	06885	374353
66	9.3700	26904	647231	3	07079	756556
14 65	9.3697	19824	890675	.0003	07274	415508
64	9.3694	12550	475167	3	07469	351769
63	9.3691	05081	123398	3	07664	565911
62	9.3687	97416	557487	3	07860	058499
61	9.3684	89556	498988	3	08055	830103
14 60	9.3681	81500	668885	.0003	08251	881294
59	9.3678	73248	787591	3	08448	212647
58	9.3675	64800	574944	3	08644	824734
57	9.3672	56155	750210	3	08841	718133
56	9.3669	47314	032077	3	09038	893419
14 55	9.3666	38275	138658	.0003	09236	351175
54	9.3663	29038	787483	3	09434	091978
53	9.3660	19604	695505	3	09632	116412
52	9.3657	09972	579093	3	09830	425063
51	9.3654	00142	154030	3	10029	018513
14 50	9.3650	90113	135517	.0003	10227	897351
49	9.3647	79885	238166	3	10427	062166
48	9.3644	69458	176000	3	10626	513549
47	9.3641	58831	662451	3	10826	252091
46	9.3638	48005	410360	3	11026	278386
14 45	9.3635	36979	131974	.0003	11226	593029
44	9.3632	25752	538945	3	11427	196619
43	9.3629	14325	342326	3	11628	089753
42	9.3626	02697	252573	3	11829	273031
41	9.3622	90867	979542	3	12030	747057
14 40	9.3619	78837	232485	.0003	12232	512433

## Log Tangents

c	log. tan.			$\Delta^1$		
14 40	9.3619	78837	232485	.0003	12232	512433
39	9.3616	66604	720052	3	12434	569764
38	9.3613	54170	150288	3	12636	919660
37	9.3610	41533	230628	3	12839	562727
36	9.3607	28693	667901	3	13042	499575
14 35	9.3604	15651	168326	.0003	13245	730820
34	9.3601	02405	437506	3	13449	257072
33	9.3597	88956	180434	3	13653	078948
32	9.3594	75303	101486	3	13857	197066
31	9.3591	61445	904420	3	14061	612044
14 30	9.3588	47384	292376	.0003	14266	324504
29	9.3585	33117	967872	3	14471	335067
28	9.3582	18646	632805	3	14676	644358
27	9.3579	03969	988447	3	14882	253004
26	9.3575	89087	735443	3	15088	161631
14 25	9.3572	73999	573812	.0003	15294	370870
24	9.3569	58705	202942	3	15500	881352
23	9.3566	43204	321590	3	15707	693710
22	9.3563	27496	627880	3	15914	808579
21	9.3560	11581	819301	3	16122	226595
14 20	9.3556	95459	592706	.0003	16329	948397
19	9.3553	79129	644309	3	16537	974626
18	9.3550	62591	669683	3	16746	305923
17	9.3547	45845	363760	3	16954	942932
16	9.3544	28890	420828	3	17163	886300
14 15	9.3541	11726	534528	.0003	17373	136672
14	9.3537	94353	397856	3	17582	694700
13	9.3534	76770	703156	3	17792	561035
12	9.3531	58978	142121	3	18002	736328
11	9.3528	40975	405793	3	18213	221236
14 10	9.3525	22762	184557	.0003	18424	016414
09	9.3522	04338	168143	3	18635	122523
08	9.3518	85703	045620	3	18846	540222
07	9.3515	66856	505398	3	19058	270172
06	9.3512	47798	235226	3	19270	313042
14 05	9.3509	28527	922184	.0003	19482	669492
04	9.3506	09045	252692	3	19695	340195
03	9.3502	89349	912497	3	19908	325819
02	9.3499	69441	586678	3	20121	627036
01	9.3496	49319	959642	3	20335	244521
14 00	9.3493	28984	715121	.0003	20549	178947

## Log Tangents

c	log. tan.			$\Delta^1$		
14 00	9.3493	28984	715121	.0003	20549	178947
13 99	9.3490	08435	536174	3	20763	430994
98	9.3486	87672	105180	3	20978	001342
97	9.3483	66694	103838	3	21192	890671
96	9.3480	45501	213167	3	21408	099665
13 95	9.3477	24093	113502	.0003	21623	629010
94	9.3474	02469	484492	3	21839	479394
93	9.3470	80630	005098	3	22055	651505
92	9.3467	58574	353593	3	22272	146036
91	9.3464	36302	207557	3	22488	963678
13 90	9.3461	13813	243879	.0003	22706	105129
89	9.3457	91107	138750	3	22923	571085
88	9.3454	68183	567665	3	23141	362246
87	9.3451	45042	205419	3	23359	479314
86	9.3448	21682	726105	3	23577	922992
13 85	9.3444	98104	803113	.0003	23796	693984
84	9.3441	74308	109129	3	24015	793000
83	9.3438	50292	316129	3	24235	220748
82	9.3435	26057	095381	3	24454	977941
81	9.3432	01602	117440	3	24675	065291
13 80	9.3428	76927	052149	.0003	24895	483515
79	9.3425	52031	568634	3	25116	233332
78	9.3422	26915	335302	3	25337	315459
77	9.3419	01578	019843	3	25558	730621
76	9.3415	76019	289222	3	25780	479540
13 75	9.3412	50238	809682	.0003	26002	562943
74	9.3409	24236	246739	3	26224	981560
73	9.3405	98011	265179	3	26447	736119
72	9.3402	71563	529060	3	26670	827354
71	9.3399	44892	701706	3	26894	255999
13 70	9.3396	17998	445707	.0003	27118	022792
69	9.3392	90880	422915	3	27342	128473
68	9.3389	63538	294442	3	27566	573779
67	9.3386	35971	720663	3	27791	359459
66	9.3383	08180	361204	3	28016	486254
13 65	9.3379	80163	874950	.0003	28241	954915
64	9.3376	51921	920035	3	28467	766190
63	9.3373	23454	153845	3	28693	920833
62	9.3369	94760	233012	3	28920	419596
61	9.3366	65839	813416	3	29147	263237
13 60	9.3363	36692	550179	.0003	29374	452516

## Log Tangents

c	log. tan.			$\Delta^1$		
13 60	9.3363	36692	550179	.0003	29374	452516
59	9.3360	07318	097663	3	29601	988193
58	9.3356	77716	109470	3	29829	871029
57	9.3353	47886	238441	3	30058	101795
56	9.3350	17828	136646	3	30286	681254
13 55	9.3346	87541	455392	.0003	30515	610177
54	9.3343	57025	845215	3	30744	889340
53	9.3340	26280	955875	3	30974	519512
52	9.3336	95306	436363	3	31204	501475
51	9.3333	64101	934888	3	31434	836006
13 50	9.3330	32667	098882	.0003	31665	523886
49	9.3327	01001	574996	3	31896	565900
48	9.3323	69105	009096	3	32127	962834
47	9.3320	36977	046262	3	32359	715478
46	9.3317	04617	330784	3	32591	824619
13 45	9.3313	72025	506165	.0003	32824	291055
44	9.3310	39201	215110	3	33057	115578
43	9.3307	06144	099532	3	33290	298989
42	9.3303	72853	800543	3	33523	842086
41	9.3300	39329	958457	3	33757	745673
13 40	9.3297	05572	212784	.0003	33992	010554
39	9.3293	71580	202230	3	34226	637539
38	9.3290	37353	564691	3	34461	627435
37	9.3287	02891	937256	3	34696	981057
36	9.3283	68194	956199	3	34932	699219
13 35	9.3280	33262	256980	.0003	35168	782738
34	9.3276	98093	474242	3	35405	232433
33	9.3273	62688	241809	3	35642	049129
32	9.3270	27046	192680	3	35879	233647
31	9.3266	91166	959033	3	36116	786818
13 30	9.3263	55050	172215	.0003	36354	709469
29	9.3260	18695	462746	3	36593	002433
28	9.3256	82102	460313	3	36831	666544
27	9.3253	45270	793769	3	37070	702641
26	9.3250	08200	091128	3	37310	111562
13 25	9.3246	70889	979566	.0003	37549	894151
24	9.3243	33340	085415	3	37790	051250
23	9.3239	95550	034165	3	38030	583710
22	9.3236	57519	450455	3	38271	492379
21	9.3233	19247	958076	3	38512	778108
13 20	9.3229	80735	179968	.0003	38754	441755

## Log Tangents

c	log. tan.			$\Delta^1$		
13 20	9.3229	80735	179968	.0003	38754	441755
19	9.3226	41980	738213	3	38996	484177
18	9.3223	02984	254036	3	39238	906233
17	9.3219	63745	347803	3	39481	708786
16	9.3216	24263	639017	3	39724	892704
13 15	9.3212	84538	746313	.0003	39968	458853
14	9.3209	44570	287460	3	40212	408103
13	9.3206	04357	879357	3	40456	741331
12	9.3202	63901	138026	3	40701	459410
11	9.3199	23199	678616	3	40946	563219
13 10	9.3195	82253	115397	.0003	41192	053642
09	9.3192	41061	061755	3	41437	931561
08	9.3188	99623	130194	3	41684	197863
07	9.3185	57938	932331	3	41930	853439
06	9.3182	16008	078892	3	42177	899180
13 05	9.3178	73830	179712	.0003	42425	335982
04	9.3175	31404	843730	3	42673	164743
03	9.3171	88731	678987	3	42921	386362
02	9.3168	45810	292625	3	43170	001745
01	9.3165	02640	290880	3	43419	011795
13 00	9.3161	59221	279085	.0003	43668	417424
12 99	9.3158	15552	861661	3	43918	219543
98	9.3154	71634	642118	3	44168	419064
97	9.3151	27466	223054	3	44419	016909
96	9.3147	83047	206145	3	44670	013994
12 95	9.3144	38377	192151	.0003	44921	411244
94	9.3140	93455	780907	3	45173	209585
93	9.3137	48282	571322	3	45425	409946
92	9.3134	02857	161376	3	45678	013257
91	9.3130	57179	148119	3	45931	020455
12 90	9.3127	11248	127664	.0003	46184	432476
89	9.3123	65063	695188	3	46438	250260
88	9.3120	18625	444928	3	46692	474752
87	9.3116	71932	970176	3	46947	106896
86	9.3113	24985	863280	3	47202	147644
12 85	9.3109	77783	715636	.0003	47457	597945
84	9.3106	30326	117691	3	47713	458757
83	9.3102	82612	658934	3	47969	731036
82	9.3099	34642	927898	3	48226	415744
81	9.3095	86416	512154	3	48483	513846
12 80	9.3092	37932	998308	.0003	48741	026306



## Log Tangents

c	log. tan.			$\Delta^1$		
12 80	9.3092	37932	998308	.0003	48741	026306
79	9.3088	89191	972002	3	48998	954098
78	9.3085	40193	017904	3	49257	298193
77	9.3081	90935	719711	3	49516	059568
76	9.3078	41419	660143	3	49775	239201
12 75	9.3074	91644	420942	.0003	50034	838076
74	9.3071	41609	582866	3	50294	857178
73	9.3067	91314	725688	3	50555	297495
72	9.3064	40759	428193	3	50816	160019
71	9.3060	89943	268174	3	51077	445745
12 70	9.3057	38865	822429	.0003	51339	155671
69	9.3053	87526	666758	3	51601	290797
68	9.3050	35925	375961	3	51863	852129
67	9.3046	84061	523832	3	52126	840673
66	9.3043	31934	683159	3	52390	257440
12 65	9.3039	79544	425719	.0003	52654	103445
64	9.3036	26890	322274	3	52918	379703
63	9.3032	73971	942571	3	53183	087235
62	9.3029	20788	855336	3	53448	227065
61	9.3025	67340	628271	3	53713	800219
12 60	9.3022	13626	828052	.0003	53979	807728
59	9.3018	59647	020324	3	54246	250624
58	9.3015	05400	769700	3	54513	129944
57	9.3011	50887	639756	3	54780	446729
56	9.3007	96107	193027	3	55048	202020
12 55	9.3004	41058	991007	.0003	55316	396866
54	9.3000	85742	594141	3	55585	032314
53	9.2997	30157	561827	3	55854	109420
52	9.2993	74303	452407	3	56123	629239
51	9.2990	18179	823168	3	56393	592830
12 50	9.2986	61786	230338	.0003	56664	001259
49	9.2983	05122	229079	3	56934	855591
48	9.2979	48187	373488	3	57206	156896
47	9.2975	90981	216592	3	57477	906248
46	9.2972	33503	310344	3	57750	104725
12 45	9.2968	75753	205619	.0003	58022	753406
44	9.2965	17730	452213	3	58295	853375
43	9.2961	59434	598838	3	58569	405722
42	9.2958	00865	193116	3	58843	411534
41	9.2954	42021	781582	3	59117	871909
12 40	9.2950	82903	909673	.0003	59392	787943

## Log Tangents

c	log. tan.			$\Delta^1$		
12 40	9.2950	82903	909673	.0003	59392	787943
39	9.2947	23511	121730	3	59668	160739
38	9.2943	63842	960991	3	59943	991400
37	9.2940	03898	969591	3	60220	281038
36	9.2936	43678	688553	3	60497	030762
12 35	9.2932	83181	657791	.0003	60774	241690
34	9.2929	22407	416101	3	61051	914942
33	9.2925	61355	501159	3	61330	051638
32	9.2922	00025	449521	3	61608	652909
31	9.2918	38416	796612	3	61887	719882
12 30	9.2914	76529	076730	.0003	62167	253694
29	9.2911	14361	823036	3	62447	255481
28	9.2907	51914	567555	3	62727	726385
27	9.2903	89186	841170	3	63008	667551
26	9.2900	26178	173619	3	63290	080130
12 25	9.2896	62888	093489	.0003	63571	965273
24	9.2892	99316	128216	3	63854	324136
23	9.2889	35461	804080	3	64137	157880
22	9.2885	71324	646200	3	64420	467671
21	9.2882	06904	178529	3	64704	254675
12 20	9.2878	42199	923854	.0003	64988	520063
19	9.2874	77211	403791	3	65273	265014
18	9.2871	11938	138777	3	65558	490704
17	9.2867	46379	648073	3	65844	198318
16	9.2863	80535	449755	3	66130	389044
12 15	9.2860	14405	060711	.0003	66417	064072
14	9.2856	47987	996639	3	66704	224598
13	9.2852	81283	772041	3	66991	871819
12	9.2849	14291	900222	3	67280	006942
11	9.2845	47011	893280	3	67568	631171
12 10	9.2841	79443	262109	.0003	67857	745717
09	9.2838	11585	516392	3	68147	351796
08	9.2834	43438	164596	3	68437	450628
07	9.2830	75000	713968	3	68728	043434
06	9.2827	06272	670534	3	69019	131442
12 05	9.2823	37253	539092	.0003	69310	715885
04	9.2819	67942	823207	3	69602	797995
03	9.2815	98340	025212	3	69895	379014
02	9.2812	28444	646198	3	70188	460186
01	9.2808	58256	186012	3	70482	042755
12 00	9.2804	87774	143257	.0003	70776	127977

## Log Tangents

c	log. tan.			$\Delta^1$		
12 00	9.2804	87774	143257	.0003	70776	127977
11 99	9.2801	16998	015280	3	71070	717106
98	9.2797	45927	298174	3	71365	811404
97	9.2793	74561	486770	3	71661	412133
96	9.2790	02900	074637	3	71957	520563
11 95	9.2786	30942	554074	.0003	72254	137967
94	9.2782	58688	416107	3	72551	265623
93	9.2778	86137	150484	3	72848	904810
92	9.2775	13288	245674	3	73147	056818
91	9.2771	40141	188856	3	73445	722932
11 90	9.2767	66695	465924	.0003	73744	904451
89	9.2763	92950	561473	3	74044	602672
88	9.2760	18905	958801	3	74344	818897
87	9.2756	44561	139904	3	74645	554435
86	9.2752	69915	585469	3	74946	810599
11 85	9.2748	94968	774870	.0003	75248	588704
84	9.2745	19720	186166	3	75550	890071
83	9.2741	44169	296095	3	75853	716026
82	9.2737	68315	580069	3	76157	067897
81	9.2733	92158	512172	3	76460	947022
11 80	9.2730	15697	565150	.0003	76765	354737
79	9.2726	38932	210413	3	77070	292386
78	9.2722	61861	918027	3	77375	761318
77	9.2718	84486	156709	3	77681	762885
76	9.2715	06804	393824	3	77988	298443
11 75	9.2711	28816	095381	.0003	78295	369355
74	9.2707	50520	726026	3	78602	976989
73	9.2703	71917	749037	3	78911	122714
72	9.2699	93006	626323	3	79219	807906
71	9.2696	13786	818417	3	79529	033946
11 70	9.2692	34257	784471	.0003	79838	802220
69	9.2688	54418	982251	3	80149	114116
68	9.2684	74269	868135	3	80459	971032
67	9.2680	93809	897103	3	80771	374363
66	9.2677	13038	522740	3	81083	325518
11 65	9.2673	31955	197222	.0003	81395	825903
64	9.2669	50559	371319	3	81708	876934
63	9.2665	68850	494385	3	82022	480028
62	9.2661	86828	014357	3	82336	636611
61	9.2658	04491	377746	3	82651	348110
11 60	9.2654	21840	029636	.0003	82966	615959

## Log Tangents

c	log. tan.			$\Delta^1$		
11 60	9.2654	21840	029636	.0003	82966	615959
59	9.2650	38873	413677	3	83282	441596
58	9.2646	55590	972081	3	83598	826467
57	9.2642	71992	145614	3	83915	772018
56	9.2638	88076	373596	3	84233	279703
11 55	9.2635	03843	093893	.0003	84551	350982
54	9.2631	19291	742911	3	84869	987317
53	9.2627	34421	755594	3	85189	190177
52	9.2623	49232	565417	3	85508	961037
51	9.2619	63723	604380	3	85829	301374
11 50	9.2615	77894	303006	.0003	86150	212676
49	9.2611	91744	090330	3	86471	696427
48	9.2608	05272	393903	3	86793	754125
47	9.2604	18478	639778	3	87116	387269
46	9.2600	31362	252509	3	87439	597364
11 45	9.2596	43922	655145	.0003	87763	385920
44	9.2592	56159	269225	3	88087	754452
43	9.2588	68071	514773	3	88412	704481
42	9.2584	79658	810292	3	88738	237535
41	9.2580	90920	572757	3	89064	355142
11 40	9.2577	01856	217615	.0003	89391	058842
39	9.2573	12465	158773	3	89718	350175
38	9.2569	22746	808598	3	90046	230691
37	9.2565	32700	577907	3	90374	701941
36	9.2561	42325	875966	3	90703	765484
11 35	9.2557	51622	110482	.0003	91033	422886
34	9.2553	60588	687596	3	91363	675714
33	9.2549	69225	011882	3	91694	525545
32	9.2545	77530	486337	3	92025	973959
31	9.2541	85504	512378	3	92358	022542
11 30	9.2537	93146	489836	.0003	92690	672887
29	9.2534	00455	816949	3	93023	926591
28	9.2530	07431	890358	3	93357	785257
27	9.2526	14074	105101	3	93692	250495
26	9.2522	20381	854606	3	94027	323918
11 25	9.2518	26354	530688	.0003	94363	007148
24	9.2514	31991	523540	3	94699	301810
23	9.2510	37292	221730	3	95036	209537
22	9.2506	42256	012193	3	95373	731968
21	9.2502	46882	280225	3	95711	870742
11 20	9.2498	51170	409483	.0003	96050	627515

## Log Tangents

c	log. tan.			$\Delta^1$
11 20	9.2498	51170	409483	.0003 96050 627515
19	9.2494	55119	781968	3 96390 003936
18	9.2490	58729	778032	3 96730 001672
17	9.2486	61999	776360	3 97070 622387
16	9.2482	64929	153973	3 97411 867756
11 15	9.2478	67517	286217	.0003 97753 739456
14	9.2474	69763	546761	3 98096 239174
13	9.2470	71667	307587	3 98439 368603
12	9.2466	73227	938984	3 98783 129437
11	9.2462	74444	809547	3 99127 523383
11 10	9.2458	75317	286164	.0003 99472 552148
09	9.2454	75844	734016	3 99818 217449
08	9.2450	76026	516567	4 00164 521010
07	9.2446	75861	995557	4 00511 464556
06	9.2442	75350	531001	4 00859 049823
11 05	9.2438	74491	481178	.0004 01207 278554
04	9.2434	73284	202624	4 01556 152494
03	9.2430	71728	050130	4 01905 673396
02	9.2426	69822	376734	4 02255 843021
01	9.2422	67566	533713	4 02606 663137
11 00	9.2418	64959	870576	.0004 02958 135513
10 99	9.2414	62001	735063	4 03310 261931
98	9.2410	58691	473132	4 03663 044176
97	9.2406	55028	428956	4 04016 484041
96	9.2402	51011	944915	4 04370 583322
10 95	9.2398	46641	361593	.0004 04725 343828
94	9.2394	41916	017765	4 05080 767369
93	9.2390	36835	250396	4 05436 855764
92	9.2386	31398	394632	4 05793 610837
91	9.2382	25604	783795	4 06151 034422
10 90	9.2378	19453	749373	.0004 06509 128356
89	9.2374	12944	621017	4 06867 894487
88	9.2370	06076	726530	4 07227 334663
87	9.2365	98849	391867	4 07587 450747
86	9.2361	91261	941120	4 07948 244602
10 85	9.2357	83313	696518	.0004 08309 718104
84	9.2353	75003	978414	4 08671 873129
83	9.2349	66332	105285	4 09034 711567
82	9.2345	57297	393718	4 09398 235310
81	9.2341	47899	158408	4 09762 446258
10 80	9.2337	38136	712150	.0004 10127 346319

## Log Tangents

c	log. tan.			$\Delta^1$		
10 80	9.2337	38136	712150	.0004	10127	346319
79	9.2333	28009	365831	4	10492	937409
78	9.2329	17516	428422	4	10859	221450
77	9.2325	06657	206972	4	11226	200368
76	9.2320	95431	006604	4	11593	876104
10 75	9.2316	83837	130500	.0004	11962	250596
74	9.2312	71874	879904	4	12331	325799
73	9.2308	59543	554105	4	12701	103669
72	9.2304	46842	450436	4	13071	586171
71	9.2300	33770	864265	4	13442	775279
10 70	9.2296	20328	088986	.0004	13814	672971
69	9.2292	06513	416015	4	14187	281237
68	9.2287	92326	134778	4	14560	602069
67	9.2283	77765	532709	4	14934	637471
66	9.2279	62830	895238	4	15309	389452
10 65	9.2275	47521	505786	.0004	15684	860031
64	9.2271	31836	645755	4	16061	051231
63	9.2267	15775	594524	4	16437	965085
62	9.2262	99337	629439	4	16815	603634
61	9.2258	82522	025805	4	17193	968926
10 60	9.2254	65328	056879	.0004	17573	063016
59	9.2250	47754	993863	4	17952	887968
58	9.2246	29802	105895	4	18333	445852
57	9.2242	11468	660043	4	18714	738750
56	9.2237	92753	921293	4	19096	768746
10 55	9.2233	73657	152547	.0004	19479	537936
54	9.2229	54177	614611	4	19863	048423
53	9.2225	34314	566188	4	20247	302318
52	9.2221	14067	263870	4	20632	301740
51	9.2216	93434	962130	4	21018	048815
10 50	9.2212	72416	913315	.0004	21404	545680
49	9.2208	51012	367635	4	21791	794475
48	9.2204	29220	573160	4	22179	797355
47	9.2200	07040	775805	4	22568	556477
46	9.2195	84472	219328	4	22958	074011
10 45	9.2191	61514	145317	.0004	23348	352131
44	9.2187	38165	793186	4	23739	393024
43	9.2183	14426	400162	4	24131	198880
42	9.2178	90295	201282	4	24523	771904
41	9.2174	65771	429378	4	24917	114302
10 40	9.2170	40854	315076	.0004	25311	228294

## Log Tangents

c	log. tan.			$\Delta^1$		
10 40	9.2170	40854	315076	.0004	25311	228294
39	9.2166	15543	086782	4	25706	116109
38	9.2161	89836	970673	4	26101	779979
37	9.2157	63735	190694	4	26498	222149
36	9.2153	37236	968545	4	26895	444874
10 35	9.2149	10341	523671	.0004	27293	450412
34	9.2144	83048	073259	4	27692	241037
33	9.2140	55355	832222	4	28091	819025
32	9.2136	27264	013197	4	28492	186664
31	9.2131	98771	826533	4	28893	346254
10 30	9.2127	69878	480279	.0004	29295	300096
29	9.2123	40583	180183	4	29698	050508
28	9.2119	10885	129675	4	30101	599813
27	9.2114	80783	529862	4	30505	950343
26	9.2110	50277	579519	4	30911	104441
10 25	9.2106	19366	475078	.0004	31317	064456
24	9.2101	88049	410622	4	31723	832749
23	9.2097	56325	577873	4	32131	411692
22	9.2093	24194	166181	4	32539	803659
21	9.2088	91654	362522	4	32949	011041
10 20	9.2084	58705	351481	.0004	33359	036235
19	9.2080	25346	315246	4	33769	881648
18	9.2075	91576	433598	4	34181	549696
17	9.2071	57394	883902	4	34594	042803
16	9.2067	22800	841099	4	35007	363407
10 15	9.2062	87793	477692	.0004	35421	513951
14	9.2058	52371	963741	4	35836	496891
13	9.2054	16535	466850	4	36252	314691
12	9.2049	80283	152159	4	36668	969823
11	9.2045	43614	182336	4	37086	464774
10 10	9.2041	06527	717562	.0004	37504	802036
09	9.2036	69022	915526	4	37923	984112
08	9.2032	31098	931414	4	38344	013517
07	9.2027	92754	917897	4	38764	892773
06	9.2023	53990	025124	4	39186	624414
10 05	9.2019	14803	400710	.0004	39609	210984
04	9.2014	75194	189726	4	40032	655036
03	9.2010	35161	534690	4	40456	959136
02	9.2005	94704	575554	4	40882	125855
01	9.2001	53822	449699	4	41308	157780
10 00	9.1997	12514	291919	.0004	41735	057505

## Log Tangents

c	log. tan.			$\Delta^1$		
10 00	9.1997	12514	291919	.0004	41735	057505
9 99	9.1992	70779	234414	4	42162	827635
98	9.1988	28616	406779	4	42591	470787
97	9.1983	86024	935992	4	43020	989584
96	9.1979	43003	946408	4	43451	386666
9 95	9.1974	99552	559742	.0004	43882	664679
94	9.1970	55669	895063	4	44314	826282
93	9.1966	11355	068781	4	44747	874142
92	9.1961	66607	194639	4	45181	810939
91	9.1957	21425	383700	4	45616	639364
9 90	9.1952	75808	744336	.0004	46052	362118
89	9.1948	29756	382218	4	46488	981913
88	9.1943	83267	400305	4	46926	501473
87	9.1939	36340	898832	4	47364	923529
86	9.1934	88975	975303	4	47804	250831
9 85	9.1930	41171	724472	.0004	48244	486131
84	9.1925	92927	238341	4	48685	632199
83	9.1921	44241	606142	4	49127	691814
82	9.1916	95113	914328	4	49570	667766
81	9.1912	45543	246562	4	50014	562855
9 80	9.1907	95528	683707	.0004	50459	379895
79	9.1903	45069	303812	4	50905	121713
78	9.1898	94164	182099	4	51351	791141
77	9.1894	42812	390958	4	51799	391029
76	9.1889	91012	999929	4	52247	924236
9 75	9.1885	38765	075693	.0004	52697	393634
74	9.1880	86067	682059	4	53147	802105
73	9.1876	32919	879954	4	53599	152543
72	9.1871	79320	727411	4	54051	447857
71	9.1867	25269	279554	4	54504	690964
9 70	9.1862	70764	588590	.0004	54958	884794
69	9.1858	15805	703796	4	55414	032293
68	9.1853	60391	671503	4	55870	136413
67	9.1849	04521	535090	4	56327	200122
66	9.1844	48194	334968	4	56785	226400
9 65	9.1839	91409	108568	.0004	57244	218240
64	9.1835	34164	890328	4	57704	178644
63	9.1830	76460	711684	4	58165	110630
62	9.1826	18295	601054	4	58627	017228
61	9.1821	59668	583826	4	59089	901478
9 60	9.1817	00578	682348	.0004	59553	766438



## Log Tangents

c	log. tan.			$\Delta^1$		
9 60	9.1817	00578	682348	.0004	59553	766438
59	9.1812	41024	915910	4	60018	615173
58	9.1807	81006	300737	4	60484	450762
57	9.1803	20521	849975	4	60951	276302
56	9.1798	59570	573673	4	61419	094896
9 55	9.1793	98151	478777	.0004	61887	909664
54	9.1789	36263	569113	4	62357	723738
53	9.1784	73905	845375	4	62828	540265
52	9.1780	11077	305110	4	63300	362401
51	9.1775	47776	942709	4	63773	193318
9 50	9.1770	84003	749391	.0004	64247	036205
49	9.1766	19756	713186	4	64721	894256
48	9.1761	55034	818930	4	65197	770686
47	9.1756	89837	048244	4	65674	668719
46	9.1752	24162	379525	4	66152	591596
9 45	9.1747	58009	787929	.0004	66631	542569
44	9.1742	91378	245360	4	67111	524906
43	9.1738	24266	720454	4	67592	541886
42	9.1733	56674	178568	4	68074	596806
41	9.1728	88599	581762	4	68557	692973
9 40	9.1724	20041	888789	.0004	69041	833710
39	9.1719	51000	055079	4	69527	022356
38	9.1714	81473	032723	4	70013	262258
37	9.1710	11459	770465	4	70500	556786
36	9.1705	40959	213679	4	70988	909318
9 35	9.1700	69970	304361	.0004	71478	323249
34	9.1695	98491	981112	4	71968	801986
33	9.1691	26523	179126	4	72460	348955
32	9.1686	54062	830171	4	72952	967593
31	9.1681	81109	862578	4	73446	661353
9 30	9.1677	07663	201225	.0004	73941	433705
29	9.1672	33721	767520	4	74437	288129
28	9.1667	59284	479391	4	74934	228125
27	9.1662	84350	251266	4	75432	257204
26	9.1658	08917	994062	4	75931	378897
9 25	9.1653	32986	615165	.0004	76431	596744
24	9.1648	56555	018421	4	76932	914306
23	9.1643	79622	104115	4	77435	335158
22	9.1639	02186	768957	4	77938	862888
21	9.1634	24247	906069	4	78443	501101
9 20	9.1629	45804	404968	.0004	78949	253421

## Log Tangents

c	log. tan.			$\Delta^1$		
9 20	9.1629	45804	404968	.0004	78949	253421
19	9.1624	66855	151547	4	79456	123481
18	9.1619	87399	028066	4	79964	114936
17	9.1615	07434	913130	4	80473	231455
16	9.1610	26961	681675	4	80983	476721
9 15	9.1605	45978	204954	.0004	81494	854436
14	9.1600	64483	350518	4	82007	368316
13	9.1595	82475	982202	4	82521	022096
12	9.1590	99954	960106	4	83035	819523
11	9.1586	16919	140583	4	83551	764365
9 10	9.1581	33367	376218	.0004	84068	860405
09	9.1576	49298	515813	4	84587	111441
08	9.1571	64711	404372	4	85106	521289
07	9.1566	79604	883083	4	85627	093785
06	9.1561	93977	789298	4	86148	832775
9 05	9.1557	07828	956523	.0004	86671	742128
04	9.1552	21157	214395	4	87195	825728
03	9.1547	33961	388667	4	87721	087474
02	9.1542	46240	301193	4	88247	531289
01	9.1537	57992	769904	4	88775	161104
9 00	9.1532	69217	608800	.0004	89303	980876
8 99	9.1527	79913	627924	4	89833	994575
98	9.1522	90079	633349	4	90365	206190
97	9.1517	99714	427159	4	90897	619726
96	9.1513	08816	807433	4	91431	239209
8 95	9.1508	17385	568224	.0004	91966	068682
94	9.1503	25419	499542	4	92502	112205
93	9.1498	32917	387337	4	93039	373855
92	9.1493	39878	013482	4	93577	857733
91	9.1488	46300	155749	4	94117	567950
8 90	9.1483	52182	587799	.0004	94658	508643
89	9.1478	57524	079156	4	95200	683964
88	9.1473	62323	395192	4	95744	098084
87	9.1468	66579	297108	4	96288	755193
86	9.1463	70290	541915	4	96834	659501
8 85	9.1458	73455	882414	.0004	97381	815234
84	9.1453	76074	067180	4	97930	226643
83	9.1448	78143	840537	4	98479	897990
82	9.1443	79663	942547	4	99030	833564
81	9.1438	80633	108983	4	99583	037670
8 80	9.1433	81050	071313	.0005	00136	514631

## Log Tangents

c	log. tan.			$\Delta^1$		
8 80	9.1433	81050	071313	.0005	00136	514631
79	9.1428	80913	556682	5	00691	268795
78	9.1423	80222	287887	5	01247	304523
77	9.1418	78974	983364	5	01804	626202
76	9.1413	77170	357162	5	02363	238235
8 75	9.1408	74807	118927	.0005	02923	145046
74	9.1403	71883	973881	5	03484	351081
73	9.1398	68399	622800	5	04046	860805
72	9.1393	64352	761995	5	04610	678703
71	9.1388	59742	083292	5	05175	809283
8 70	9.1383	54566	274009	.0005	05742	257070
69	9.1378	48824	016939	5	06310	026612
68	9.1373	42513	990327	5	06879	122480
67	9.1368	35634	867847	5	07449	549262
66	9.1363	28185	318585	5	08021	311569
8 65	9.1358	20164	007016	.0005	08594	414035
64	9.1353	11569	592981	5	09168	861313
63	9.1348	02400	731668	5	09744	658079
62	9.1342	92656	073589	5	10321	809029
61	9.1337	82334	264560	5	10900	318884
8 60	9.1332	71433	945676	.0005	11480	192383
59	9.1327	59953	753293	5	12061	434292
58	9.1322	47892	319001	5	12644	049394
57	9.1317	35248	269607	5	13228	042497
56	9.1312	22020	227110	5	13813	418432
8 55	9.1307	08206	808678	.0005	14400	182052
54	9.1301	93806	626626	5	14988	338230
53	9.1296	78818	288396	5	15577	891869
52	9.1291	63240	396527	5	16168	847887
51	9.1286	47071	548640	5	16761	211229
8 50	9.1281	30310	337411	.0005	17354	986864
49	9.1276	12955	350547	5	17950	179783
48	9.1270	95005	170764	5	18546	795000
47	9.1265	76458	375764	5	19144	837555
46	9.1260	57313	538209	5	19744	312509
8 45	9.1255	37569	225700	.0005	20345	224950
44	9.1250	17224	000750	5	20947	579987
43	9.1244	96276	420763	5	21551	382755
42	9.1239	74725	038008	5	22156	638414
41	9.1234	52568	399594	5	22763	352148
8 40	9.1229	29805	047446	.0005	23371	529164

## Log Tangents

c	log. tan.			$\Delta^1$		
8 40	9.1229	29805	047446	.0005	23371	529164
39	9.1224	06433	518282	5	23981	174696
38	9.1218	82452	343586	5	24592	294003
37	9.1213	57860	049583	5	25204	892368
36	9.1208	32655	157215	5	25818	975100
8 35	9.1203	06836	182115	.0005	26434	547531
34	9.1197	80401	634584	5	27051	615025
33	9.1192	53350	019559	5	27670	182963
32	9.1187	25679	836596	5	28290	256761
31	9.1181	97389	579835	5	28911	841852
8 30	9.1176	68477	737983	.0005	29534	943704
29	9.1171	38942	794279	5	30159	567803
28	9.1166	08783	226476	5	30785	719669
27	9.1160	77997	506807	5	31413	404845
26	9.1155	46584	101962	5	32042	628899
8 25	9.1150	14541	473063	.0005	32673	397430
24	9.1144	81868	075633	5	33305	716062
23	9.1139	48562	359571	5	33939	590448
22	9.1134	14622	769123	5	34575	026265
21	9.1128	80047	742858	5	35212	029222
8 20	9.1123	44835	713636	.0005	35850	605053
19	9.1118	08985	108583	5	36490	759522
18	9.1112	72494	349061	5	37132	498418
17	9.1107	35361	850643	5	37775	827562
16	9.1101	97586	023081	5	38420	752803
8 15	9.1096	59165	270278	.0005	39067	280015
14	9.1091	20097	990263	5	39715	415107
13	9.1085	80382	575156	5	40365	164010
12	9.1080	40017	411146	5	41016	532691
11	9.1074	99000	878455	5	41669	527142
8 10	9.1069	57331	351313	.0005	42324	153387
09	9.1064	15007	197926	5	42980	417478
08	9.1058	72026	780448	5	43638	325498
07	9.1053	28388	454950	5	44297	883559
06	9.1047	84090	571391	5	44959	097808
8 05	9.1042	39131	473583	.0005	45621	974414
04	9.1036	93509	499169	5	46286	519586
03	9.1031	47222	979583	5	46952	739556
02	9.1026	00270	240027	5	47620	640593
01	9.1020	52649	599434	5	48290	228995
8 00	9.1015	04359	370439	.0005	48961	511090

## Log Tangents

c	log. tan.			$\Delta^1$		
8 00	9.1015	04359	370439	.0005	48961	511090
7 99	9.1009	55397	859349	5	49634	493240
98	9.1004	05763	366109	5	50309	181839
97	9.0998	55454	184270	5	50985	583310
96	9.0993	04468	600960	5	51663	704115
7 95	9.0987	52804	896845	.0005	52343	550738
94	9.0982	00461	346107	5	53025	129707
93	9.0976	47436	216400	5	53708	447575
92	9.0970	93727	768825	5	54393	510932
91	9.0965	39334	257893	5	55080	326399
7 90	9.0959	84253	931494	.0005	55768	900633
89	9.0954	28485	030861	5	56459	240323
88	9.0948	72025	790538	5	57151	352193
87	9.0943	14874	438345	5	57845	243000
86	9.0937	57029	195345	5	58540	919536
7 85	9.0931	98488	275809	.0005	59238	388629
84	9.0926	39249	887180	5	59937	657139
83	9.0920	79312	230041	5	60638	731963
82	9.0915	18673	498078	5	61341	620035
81	9.0909	57331	878043	5	62046	328320
7 80	9.0903	95285	549723	.0005	62752	863822
79	9.0898	32532	685901	5	63461	233581
78	9.0892	69071	452320	5	64171	444671
77	9.0887	04900	007649	5	64883	504207
76	9.0881	40016	503442	5	65597	419333
7 75	9.0875	74419	084109	.0005	66313	197239
74	9.0870	08105	886870	5	67030	845145
73	9.0864	41075	041725	5	67750	370312
72	9.0858	73324	671413	5	68471	780037
71	9.0853	04852	891376	5	69195	081657
7 70	9.0847	35657	809719	.0005	69920	282545
69	9.0841	65737	527174	5	70647	390112
68	9.0835	95090	137062	5	71376	411812
67	9.0830	23713	725250	5	72107	355131
66	9.0824	51606	370119	5	72840	227600
7 65	9.0818	78766	142519	.0005	73575	036786
64	9.0813	05191	105733	5	74311	790299
63	9.0807	30879	315434	5	75050	495784
62	9.0801	55828	819650	5	75791	160930
61	9.0795	80037	658720	5	76533	793467
7 60	9.0790	03503	865253	.0005	77278	401161

## Log Tangents

c	log. tan.			$\Delta^1$		
7 60	9.0790	03503	865253	.0005	77278	401161
59	9.0784	26225	464092	5	78024	991825
58	9.0778	48200	472267	5	78773	573309
57	9.0772	69426	898958	5	79524	153505
56	9.0766	89902	745453	5	80276	740349
7 55	9.0761	09626	005104	.0005	81031	341817
54	9.0755	28594	663287	5	81787	965929
53	9.0749	46806	697358	5	82546	620744
52	9.0743	64260	076614	5	83307	314371
51	9.0737	80952	762243	5	84070	054954
7 50	9.0731	96882	707289	.0005	84834	850684
49	9.0726	12047	856605	5	85601	709800
48	9.0720	26446	146805	5	86370	640578
47	9.0714	40075	506227	5	87141	651341
46	9.0708	52933	854886	5	87914	750459
7 45	9.0702	65019	104427	.0005	88689	946344
44	9.0696	76329	158083	5	89467	247455
43	9.0690	86861	910628	5	90246	662295
42	9.0684	96615	248333	5	91028	199415
41	9.0679	05587	048918	5	91811	867411
7 40	9.0673	13775	181507	.0005	92597	674924
39	9.0667	21177	506583	5	93385	630644
38	9.0661	27791	875939	5	94175	743309
37	9.0655	33616	132630	5	94968	021700
36	9.0649	38648	110930	5	95762	474651
7 35	9.0643	42885	636279	.0005	96559	111041
34	9.0637	46326	525238	5	97357	939798
33	9.0631	48968	585440	5	98158	969899
32	9.0625	50809	615541	5	98962	210370
31	9.0619	51847	405171	5	99767	670288
7 30	9.0613	52079	734883	.0006	00575	358775
29	9.0607	51504	376108	6	01385	285010
28	9.0601	50119	091098	6	02197	458215
27	9.0595	47921	632883	6	03011	887670
26	9.0589	44909	745213	6	03828	582701
7 25	9.0583	41081	162512	.0006	04647	552687
24	9.0577	36433	609825	6	05468	807061
23	9.0571	30964	802764	6	06292	355304
22	9.0565	24672	447460	6	07118	206953
21	9.0559	17554	240507	6	07946	371596
7 20	9.0553	09607	868911	.0006	08776	858878

## Log Tangents

c	log. tan.			$\Delta^1$		
7 20	9.0553	09607	868911	.0006	08776	858878
19	9.0547	00831	010033	6	09609	678490
18	9.0540	91221	331543	6	10444	840187
17	9.0534	80776	491356	6	11282	353769
16	9.0528	69494	137587	6	12122	229098
7 15	9.0522	57371	908489	.0006	12964	476087
14	9.0516	44407	432402	6	13809	104707
13	9.0510	30598	327695	6	14656	124982
12	9.0504	15942	202713	6	15505	546996
11	9.0498	00436	655717	6	16357	380888
7 10	9.0491	84079	274829	.0006	17211	636853
09	9.0485	66867	637976	6	18068	325146
08	9.0479	48799	312830	6	18927	456078
07	9.0473	29871	856752	6	19789	040018
06	9.0467	10082	816734	6	20653	087398
7 05	9.0460	89429	729336	.0006	21519	608703
04	9.0454	67910	120633	6	22388	614483
03	9.0448	45521	506150	6	23260	115344
02	9.0442	22261	390806	6	24134	121956
01	9.0435	98127	268850	6	25010	645047
7 00	9.0429	73116	623803	.0006	25889	695409
6 99	9.0423	47226	928394	6	26771	283892
98	9.0417	20455	644502	6	27655	421412
97	9.0410	92800	223090	6	28542	118948
96	9.0404	64258	104142	6	29431	387539
6 95	9.0398	34826	716603	.0006	30323	238287
94	9.0392	04503	478316	6	31217	682363
93	9.0385	73285	795953	6	32114	730998
92	9.0379	41171	064955	6	33014	395492
91	9.0373	08156	669463	6	33916	687205
6 90	9.0366	74239	982258	.0006	34821	617566
89	9.0360	39418	364692	6	35729	198074
88	9.0354	03689	166618	6	36639	440288
87	9.0347	67049	726330	6	37552	355837
86	9.0341	29497	370493	6	38467	956422
6 85	9.0334	91029	414071	.0006	39386	253805
84	9.0328	51643	160266	6	40307	259823
83	9.0322	11335	900443	6	41230	986381
82	9.0315	70104	914062	6	42157	445449
81	9.0309	27947	468613	6	43086	649076
6 80	9.0302	84860	819537	.0006	44018	609374

## Log Tangents

c	log. tan.			$\Delta^1$		
6 80	9.0302	84860	819537	.0006	44018	609374
79	9.0296	40842	210163	6	44953	338530
78	9.0289	95888	871633	6	45890	848805
77	9.0283	49998	022828	6	46831	152527
76	9.0277	03166	870301	6	47774	262102
6 75	9.0270	55392	608199	.0006	48720	190007
74	9.0264	06672	418192	6	49668	948794
73	9.0257	57003	469398	6	50620	551089
72	9.0251	06382	918309	6	51575	009596
71	9.0244	54807	908713	6	52532	337089
6 70	9.0238	02275	571624	.0006	53492	546423
69	9.0231	48783	025201	6	54455	650530
68	9.0224	94327	374671	6	55421	662417
67	9.0218	38905	712254	6	56390	595170
66	9.0211	82515	117084	6	57362	461955
6 65	9.0205	25152	655129	.0006	58337	276015
64	9.0198	66815	379114	6	59315	050676
63	9.0192	07500	328438	6	60295	799340
62	9.0185	47204	529098	6	61279	535493
61	9.0178	85924	993605	6	62266	272705
6 60	9.0172	23658	720900	.0006	63256	024621
59	9.0165	60402	696279	6	64248	804978
58	9.0158	96153	891301	6	65244	627588
57	9.0152	30909	263713	6	66243	506353
56	9.0145	64665	757360	6	67245	455258
6 55	9.0138	97420	302102	.0006	68250	488375
54	9.0132	29169	813727	6	69258	619856
53	9.0125	59911	193871	6	70269	863949
52	9.0118	89641	329922	6	71284	234983
51	9.0112	18357	094939	6	72301	747376
6 50	9.0105	46055	347563	.0006	73322	415637
49	9.0098	72732	931926	6	74346	254363
48	9.0091	98386	677563	6	75373	278241
47	9.0085	23013	399322	6	76403	502050
46	9.0078	46609	897272	6	77436	940660
6 45	9.0071	69172	956612	.0006	78473	609031
44	9.0064	90699	347581	6	79513	522221
43	9.0058	11185	825360	6	80556	695377
42	9.0051	30629	129983	6	81603	143743
41	9.0044	49025	986240	6	82652	882657
6 40	9.0037	66373	103583	.0006	83705	927555



## Log Tangents

c	log. tan.			$\Delta^1$
6 40	9.0037	66373	103583	.0006 83705 927555
39	9.0030	82667	176028	6 84762 293968
38	9.0023	97904	882060	6 85821 997521
37	9.0017	12082	884539	6 86885 053947
36	9.0010	25197	830592	6 87951 479066
6 35	9.0003	37246	351526	.0006 89021 288807
34	8.9996	48225	062719	6 90094 499196
33	8.9989	58130	563523	6 91171 126360
32	8.9982	66959	437163	6 92251 186528
31	8.9975	74708	250635	6 93334 696033
6 30	8.9968	81373	554602	.0006 94421 671313
29	8.9961	86951	883289	6 95512 128907
28	8.9954	91439	754382	6 96606 085462
27	8.9947	94833	668920	6 97703 557732
26	8.9940	97130	111188	6 98804 562576
6 25	8.9933	98325	548612	.0006 99909 116962
24	8.9926	98416	431650	7 01017 237966
23	8.9919	97399	193684	7 02128 942776
22	8.9912	95270	250908	7 03244 248688
21	8.9905	92026	002220	7 04363 173112
6 20	8.9898	87662	829108	.0007 05485 733567
19	8.9891	82177	095541	7 06611 947689
18	8.9884	75565	147852	7 07741 833227
17	8.9877	67823	314625	7 08875 408042
16	8.9870	58947	906583	7 10012 690117
6 15	8.9863	48935	216466	.0007 11153 697548
14	8.9856	37781	518918	7 12298 448549
13	8.9849	25483	070369	7 13446 961454
12	8.9842	12036	108915	7 14599 254718
11	8.9834	97436	854197	7 15755 346914
6 10	8.9827	81681	507283	.0007 16915 256741
09	8.9820	64766	250542	7 18079 003015
08	8.9813	46687	247527	7 19246 604682
07	8.9806	27440	642845	7 20418 080811
06	8.9799	07022	562034	7 21593 450594
6 05	8.9791	85429	111440	.0007 22772 733353
04	8.9784	62656	378087	7 23955 948539
03	8.9777	38700	429548	7 25143 115729
02	8.9770	13557	313819	7 26334 254632
01	8.9762	87223	059187	7 27529 385089
6 00	8.9755	59693	674098	.0007 28728 527071

## Log Tangents

c	log. tan.			$\Delta^1$		
6 00	8.9755	59693	674098	.0007	28728	527071
5 99	8.9748	30965	147027	7	29931	700684
98	8.9741	01033	446343	7	31138	926169
97	8.9733	69894	520174	7	32350	223904
96	8.9726	37544	296270	7	33565	614398
5 95	8.9719	03978	681872	.0007	34785	118307
94	8.9711	69193	563565	7	36008	756417
93	8.9704	33184	807148	7	37236	549660
92	8.9696	95948	257488	7	38468	519111
91	8.9689	57479	738377	7	39704	685981
5 90	8.9682	17775	052396	.0007	40945	071630
89	8.9674	76829	980766	7	42189	697565
88	8.9667	34640	283201	7	43438	585432
87	8.9659	91201	697769	7	44691	757033
86	8.9652	46509	940736	7	45949	234312
5 85	8.9645	00560	706424	.0007	47211	039369
84	8.9637	53349	667055	7	48477	194452
83	8.9630	04872	472603	7	49747	721961
82	8.9622	55124	750642	7	51022	644453
81	8.9615	04102	106189	7	52301	984639
5 80	8.9607	51800	121550	.0007	53585	765387
79	8.9599	98214	356163	7	54874	009723
78	8.9592	43340	346440	7	56166	740833
77	8.9584	87173	605607	7	57463	982061
76	8.9577	29709	623546	7	58765	756917
5 75	8.9569	70943	866629	.0007	60072	089076
74	8.9562	10871	777553	7	61383	002371
73	8.9554	49488	775182	7	62698	520808
72	8.9546	86790	254374	7	64018	668560
71	8.9539	22771	585814	7	65343	469967
5 70	8.9531	57428	115847	.0007	66672	949541
69	8.9523	90755	166306	7	68007	131969
68	8.9516	22748	034337	7	69346	042107
67	8.9508	53401	992230	7	70689	704993
66	8.9500	82712	287237	7	72038	145836
5 65	8.9493	10674	141401	.0007	73391	390026
64	8.9485	37282	751375	7	74749	463136
63	8.9477	62533	288239	7	76112	390914
62	8.9469	86420	897325	7	77480	199300
61	8.9462	08940	698025	7	78852	914412
5 60	8.9454	30087	783613	.0007	80230	562559

## Log Tangents

c	log. tan.			$\Delta^1$
5 60	8.9454	30087	783613	.0007 80230 562559
59	8.9446	49857	221054	7 81613 170236
58	8.9438	68244	050818	7 83000 764131
57	8.9430	85243	286687	7 84393 371118
56	8.9423	00849	915569	7 85791 018273
5 55	8.9415	15058	897296	.0007 87193 732859
54	8.9407	27865	164437	7 88601 542342
53	8.9399	39263	622095	7 90014 474385
52	8.9391	49249	147710	7 91432 556848
51	8.9383	57816	590862	7 92855 817801
5 50	8.9375	64960	773061	.0007 94284 285511
49	8.9367	70676	487550	7 95717 988455
48	8.9359	74958	499095	7 97156 955317
47	8.9351	77801	543778	7 98601 214993
46	8.9343	79200	328785	8 00050 796587
5 45	8.9335	79149	532198	.0008 01505 729419
44	8.9327	77643	802779	8 02966 043026
43	8.9319	74677	759753	8 04431 767160
42	8.9311	70245	992593	8 05902 931795
41	8.9303	64343	060798	8 07379 567126
5 40	8.9295	56963	493672	.0008 08861 703572
39	8.9287	48101	790100	8 10349 371778
38	8.9279	37752	418322	8 11842 602616
37	8.9271	25909	815706	8 13341 427191
36	8.9263	12568	388515	8 14845 876837
5 35	8.9254	97722	511678	.0008 16355 983125
34	8.9246	81366	528553	8 17871 777859
33	8.9238	63494	750694	8 19393 293089
32	8.9230	44101	457605	8 20920 561099
31	8.9222	23180	896506	8 22453 614419
5 30	8.9214	00727	282087	.0008 23992 485827
29	8.9205	76734	796260	8 25537 208345
28	8.9197	51197	587915	8 27087 815248
27	8.9189	24109	772667	8 28644 340064
26	8.9180	95465	432603	8 30206 816575
5 25	8.9172	65258	616028	.0008 31775 278821
24	8.9164	33483	337207	8 33349 761104
23	8.9156	00133	576103	8 34930 297984
22	8.9147	65203	278119	8 36516 924290
21	8.9139	28686	353829	8 38109 675119
5 20	8.9130	90576	678710	.0008 39708 585834

## Log Tangents

c	log. tan.			$\Delta^1$		
5 20	8.9130	90576	678710	.0008	39708	585834
19	8.9122	50868	092876	8	41313	692077
18	8.9114	09554	400799	8	42925	029760
17	8.9105	66629	371039	8	44542	635076
16	8.9097	22086	735963	8	46166	544497
5 15	8.9088	75920	191466	.0008	47796	794781
14	8.9080	28123	396685	8	49433	422970
13	8.9071	78689	973715	8	51076	466397
12	8.9063	27613	507318	8	52725	962687
11	8.9054	74887	544631	8	54381	949756
5 10	8.9046	20505	594875	.0008	56044	465822
09	8.9037	64461	129053	8	57713	549404
08	8.9029	06747	579649	8	59389	239319
07	8.9020	47358	340330	8	61071	574698
06	8.9011	86286	765632	8	62760	594976
5 05	8.9003	23526	170656	.0008	64456	339904
04	8.8994	59069	830752	8	66158	849546
03	8.8985	92910	981206	8	67868	164286
02	8.8977	25042	816920	8	69584	324834
01	8.8968	55458	492086	8	71307	372217
5 00	8.8959	84151	119869	.0008	73037	347799
4 99	8.8951	11113	772070	8	74774	293272
98	8.8942	36339	478798	8	76518	250661
97	8.8933	59821	228137	8	78269	262335
96	8.8924	81551	965802	8	80027	371000
4 95	8.8916	01524	594802	.0008	81792	619712
94	8.8907	19731	975090	8	83565	051871
93	8.8898	36166	923219	8	85344	711235
92	8.8889	50822	211984	8	87131	641911
91	8.8880	63690	570073	8	88925	888374
4 90	8.8871	74764	681699	.0008	90727	495457
89	8.8862	84037	186242	8	92536	508360
88	8.8853	91500	677882	8	94352	972658
87	8.8844	97147	705224	8	96176	934296
86	8.8836	00970	770928	8	98008	439599
4 85	8.8827	02962	331329	.0008	99847	535278
84	8.8818	03114	796051	9	01694	268425
83	8.8809	01420	527626	9	03548	686526
82	8.8799	97871	841100	9	05410	837460
81	8.8790	92461	003640	9	07280	769504
4 80	8.8781	85180	234136	.0009	09158	531342

## Log Tangents

c	log. tan.			$\Delta^1$		
4 80	8.8781	85180	234136	.0009	09158	531342
79	8.8772	76021	702794	9	11044	172057
78	8.8763	64977	530737	9	12937	741152
77	8.8754	52039	789585	9	14839	288539
76	8.8745	37200	501046	9	16748	864553
4 75	8.8736	20451	636493	.0009	18666	519953
74	8.8727	01785	116540	9	20592	305927
73	8.8717	81192	810613	9	22526	274092
72	8.8708	58666	536521	9	24468	476513
71	8.8699	34198	060008	9	26418	965685
4 70	8.8690	07779	094323	.0009	28377	794561
69	8.8680	79401	299762	9	30345	016539
68	8.8671	49056	283223	9	32320	685479
67	8.8662	16735	597744	9	34304	855698
66	8.8652	82430	742046	9	36297	581983
4 65	8.8643	46133	160063	.0009	38298	919592
64	8.8634	07834	240471	9	40308	924261
63	8.8624	67525	316210	9	42327	652204
62	8.8615	25197	664006	9	44355	160128
61	8.8605	80842	503878	9	46391	505228
4 60	8.8596	34450	998650	.0009	48436	745199
59	8.8586	86014	253451	9	50490	938240
58	8.8577	35523	315211	9	52554	143054
57	8.8567	82969	172157	9	54626	418868
56	8.8558	28342	753289	9	56707	825417
4 55	8.8548	71634	927872	.0009	58798	422974
54	8.8539	12836	504898	9	60898	272332
53	8.8529	51938	232566	9	63007	434831
52	8.8519	88930	797735	9	65125	972348
51	8.8510	23804	825387	9	67253	947315
4 50	8.8500	56550	878072	.0009	69391	422711
49	8.8490	87159	455361	9	71538	462089
48	8.8481	15620	993272	9	73695	129557
47	8.8471	41925	863715	9	75861	489807
46	8.8461	66064	373908	9	78037	608107
4 45	8.8451	88026	765801	.0009	80223	550316
44	8.8442	07803	215485	9	82419	382880
43	8.8432	25383	832605	9	84625	172856
42	8.8422	40758	659749	9	86840	987899
41	8.8412	53917	671850	9	89066	896283
4 40	8.8402	64850	775567	.0009	91302	966904

## Log Tangents

c	log. tan.			$\Delta^1$		
4 40	8.8402	64850	775567	.0009	91302	966904
39	8.8392	73547	808663	9	93549	269284
38	8.8382	79998	539379	9	95805	873581
37	8.8372	84192	665798	9	98072	850599
36	8.8362	86119	815199	10	00350	271788
4 35	8.8352	85769	543411	.0010	02638	209258
34	8.8342	83131	334153	10	04936	735785
33	8.8332	78194	598368	10	07245	924817
32	8.8322	70948	673551	10	09565	850482
31	8.8312	61382	823069	10	11896	587600
4 30	8.8302	49486	235469	.0010	14238	211684
29	8.8292	35248	023785	10	16590	798954
28	8.8282	18657	224831	10	18954	426343
27	8.8271	99702	798488	10	21329	171504
26	8.8261	78373	626984	10	23715	112825
4 25	8.8251	54658	514159	.0010	26112	329424
24	8.8241	28546	184735	10	28520	901175
23	8.8231	00025	283560	10	30940	908702
22	8.8220	69084	374858	10	33372	433399
21	8.8210	35711	941459	10	35815	557430
4 20	8.8199	99896	384029	.0010	38270	363745
19	8.8189	61626	020284	10	40736	936086
18	8.8179	20889	084198	10	43215	358996
17	8.8168	77673	725202	10	45705	717835
16	8.8158	31968	007367	10	48208	098778
4 15	8.8147	83759	908589	.0010	50722	588835
14	8.8137	33037	319754	10	53249	275860
13	8.8126	79788	043894	10	55788	248553
12	8.8116	23999	795341	10	58339	596482
11	8.8105	65660	198859	10	60903	410085
4 10	8.8095	04756	788774	.0010	63479	780682
09	8.8084	41277	008092	10	66068	800492
08	8.8073	75208	207600	10	68670	562635
07	8.8063	06537	644965	10	71285	161146
06	8.8052	35252	483819	10	73912	690995
4 05	8.8041	61339	792824	.0010	76553	248081
04	8.8030	84786	544743	10	79206	929264
03	8.8020	05579	615479	10	81873	832359
02	8.8009	23705	783120	10	84554	056157
01	8.7998	39151	726963	10	87247	700439
4 00	8.7987	51904	026524	.0010	89954	865981

## Log Tangents

c	log. tan.			$\Delta^1$		
4 00	8.7987	51904	026524	.0010	89954	865981
3 99	8.7976	61949	160543	10	92675	654574
98	8.7965	69273	505969	10	95410	169031
97	8.7954	73863	336938	10	98158	513202
96	8.7943	75704	823736	11	00920	791990
3 95	8.7932	74784	031746	.0011	03697	111359
94	8.7921	71086	920387	11	06487	578350
93	8.7910	64599	342037	11	09292	301098
92	8.7899	55307	040939	11	12111	388840
91	8.7888	43195	652099	11	14944	951931
3 90	8.7877	28250	700168	.0011	17793	101863
89	8.7866	10457	598305	11	20655	951275
88	8.7854	89801	647030	11	23533	613964
87	8.7843	66268	033066	11	26426	204911
86	8.7832	39841	828155	11	29333	840288
3 85	8.7821	10507	987867	.0011	32256	637472
84	8.7809	78251	350395	11	35194	715072
83	8.7798	43056	635323	11	38148	192928
82	8.7787	04908	442395	11	41117	192144
81	8.7775	63791	250251	11	44101	835093
3 80	8.7764	19689	415158	.0011	47102	245440
79	8.7752	72587	169718	11	50118	548156
78	8.7741	22468	621562	11	53150	869536
77	8.7729	69317	752026	11	56199	337217
76	8.7718	13118	414809	11	59264	080195
3 75	8.7706	53854	334614	.0011	62345	228847
74	8.7694	91509	105767	11	65442	914940
73	8.7683	26066	190827	11	68557	271664
72	8.7671	57508	919163	11	71688	433636
71	8.7659	85820	485527	11	74836	536929
3 70	8.7648	10983	948598	.0011	78001	719092
69	8.7636	32982	229506	11	81184	119161
68	8.7624	51798	110345	11	84383	877691
67	8.7612	67414	232654	11	87601	136767
66	8.7600	79813	095887	11	90836	040033
3 65	8.7588	88977	055854	.0011	94088	732706
64	8.7576	94888	323148	11	97359	361600
63	8.7564	97528	961548	12	00648	075153
62	8.7552	96880	886395	12	03955	023445
61	8.7540	92925	862950	12	07280	358217
3 60	8.7528	85645	504733	.0012	10624	232903

## Log Tangents

c	log. tan.			$\Delta^1$		
3 60	8.7528	85645	504733	.0012	10624	232903
59	8.7516	75021	271830	12	13986	802646
58	8.7504	61034	469184	12	17368	224326
57	8.7492	43666	244858	12	20768	656584
56	8.7480	22897	588274	12	24188	259845
3 55	8.7467	98709	328429	.0012	27627	196344
54	8.7455	71082	132085	12	31085	630153
53	8.7443	39996	501932	12	34563	727205
52	8.7431	05432	774727	12	38061	655320
51	8.7418	67371	119407	12	41579	584236
3 50	8.7406	25791	535171	.0012	45117	685631
49	8.7393	80673	849540	12	48676	133155
48	8.7381	31997	716385	12	52255	102457
47	8.7368	79742	613928	12	55854	771213
46	8.7356	23887	842715	12	59475	319156
3 45	8.7343	64412	523559	.0012	63116	928107
44	8.7331	01295	595452	12	66779	782002
43	8.7318	34515	813450	12	70464	066928
42	8.7305	64051	746522	12	74169	971149
41	8.7292	89881	775373	12	77897	685144
3 40	8.7280	11984	090229	.0012	81647	401631
39	8.7267	30336	688598	12	85419	315612
38	8.7254	44917	372986	12	89213	624394
37	8.7241	55703	748592	12	93030	527634
36	8.7228	62673	220958	12	96870	227365
3 35	8.7215	65802	993593	.0013	00732	928041
34	8.7202	65070	065552	13	04618	836564
33	8.7189	60451	228988	13	08528	162328
32	8.7176	51923	066660	13	12461	117252
31	8.7163	39461	949408	13	16417	915819
3 30	8.7150	23044	033589	.0013	20398	775118
29	8.7137	02645	258471	13	24403	914881
28	8.7123	78241	343590	13	28433	557522
27	8.7110	49807	786068	13	32487	928182
26	8.7097	17319	857886	13	36567	254768
3 25	8.7083	80752	603118	.0013	40671	767993
24	8.7070	40080	835125	13	44801	701430
23	8.7056	95279	133695	13	48957	291542
22	8.7043	46321	842153	13	53138	777738
21	8.7029	93183	064415	13	57346	402415
3 20	8.7016	35836	662000	.0013	61580	411000



## Log Tangents

c	log. tan.			$\Delta^1$		
3 20	8.7016	35836	662000	.0013	61580	411000
19	8.7002	74256	251000	13	65841	052010
18	8.6989	08415	198990	13	70128	577086
17	8.6975	38286	621904	13	74443	241053
16	8.6961	63843	380851	13	78785	301966
3 15	8.6947	85058	078885	.0013	83155	021162
14	8.6934	01903	057723	13	87552	663313
13	8.6920	14350	394410	13	91978	496476
12	8.6906	22371	897934	13	96432	792155
11	8.6892	25939	105779	14	00915	825349
3 10	8.6878	25023	280430	.0014	05427	874609
09	8.6864	19595	405821	14	09969	222102
08	8.6850	09626	183719	14	14540	153663
07	8.6835	95086	030056	14	19140	958857
06	8.6821	75945	071199	14	23771	931043
3 05	8.6807	52173	140156	.0014	28433	367430
04	8.6793	23739	772726	14	33125	569145
03	8.6778	90614	203581	14	37848	841301
02	8.6764	52765	362280	14	42603	493054
01	8.6750	10161	869226	14	47389	837676
3 00	8.6735	62772	031550	.0014	52208	192625
2 99	8.6721	10563	838925	14	57058	879613
98	8.6706	53504	959312	14	61942	224675
97	8.6691	91562	734637	14	66858	558248
96	8.6677	24704	176389	14	71808	215236
2 95	8.6662	52895	961153	.0014	76791	535101
94	8.6647	76104	426052	14	81808	861923
93	8.6632	94295	564129	14	86860	544491
92	8.6618	07435	019638	14	91946	936381
91	8.6603	15488	083257	14	97068	396036
2 90	8.6588	18419	687221	.0015	02225	286850
89	8.6573	16194	400371	15	07417	977261
88	8.6558	08776	423110	15	12646	840826
87	8.6542	96129	582284	15	17912	256324
86	8.6527	78217	325960	15	23214	607835
2 85	8.6512	55002	718125	.0015	28554	284844
84	8.6497	26448	433281	15	33931	682330
83	8.6481	92516	750951	15	39347	200862
82	8.6466	53169	550089	15	44801	246704
81	8.6451	08368	303385	15	50294	231914
2 80	8.6435	58074	071471	.0015	55826	574444

## Log Tangents

c	log. tan.			$\Delta^1$
2 80	8.6435	58074	071471	.0015 55826 574444
79	8.6420	02247	497027	15 61398 698250
78	8.6404	40848	798777	15 67011 033401
77	8.6388	73837	765376	15 72664 016186
76	8.6373	01173	749190	15 78358 089230
2 75	8.6357	22815	659960	.0015 84093 701604
74	8.6341	38721	958356	15 89871 308952
73	8.6325	48850	649404	15 95691 373605
72	8.6309	53159	275799	16 01554 364701
71	8.6293	51604	911098	16 07460 758323
2 70	8.6277	44144	152775	.0016 13411 037612
69	8.6261	30733	115163	16 19405 692916
68	8.6245	11327	422247	16 25445 221905
67	8.6228	85882	200342	16 31530 129728
66	8.6212	54352	070614	16 37660 929139
2 65	8.6196	16691	141475	.0016 43838 140647
64	8.6179	72853	000828	16 50062 292666
63	8.6163	22790	708162	16 56333 921658
62	8.6146	66456	786504	16 62653 572292
61	8.6130	03803	214212	16 69021 797602
2 60	8.6113	34781	416610	.0016 75439 159146
59	8.6096	59342	257464	16 81906 227170
58	8.6079	77436	030294	16 88423 580781
57	8.6062	89012	449513	16 94991 808115
56	8.6045	94020	641398	17 01611 506515
2 55	8.6028	92409	134883	.0017 08283 282715
54	8.6011	84125	852168	17 15007 753022
53	8.5994	69118	099146	17 21785 543504
52	8.5977	47332	555642	17 28617 290189
51	8.5960	18715	265453	17 35503 639263
2 50	8.5942	83211	626190	.0017 42445 247264
49	8.5925	40766	378926	17 49442 781310
48	8.5907	91323	597616	17 56496 919287
47	8.5890	34826	678329	17 63608 350095
46	8.5872	71218	328234	17 70777 773847
2 45	8.5855	00440	554387	.0017 78005 902118
44	8.5837	22434	652269	17 85293 458166
43	8.5819	37141	194103	17 92641 177186
42	8.5801	44500	016917	18 00049 806543
41	8.5783	44450	210374	18 07520 106037
2 40	8.5765	36930	104337	.0018 15052 848156

## Log Tangents

c	log. tan.			$\Delta^1$		
2 40	8.5765	36930	104337	.0018	15052	848156
39	8.5747	21877	256181	18	22648	818347
38	8.5728	99228	437834	18	30308	815278
37	8.5710	68919	622556	18	38033	651135
36	8.5692	30885	971421	18	45824	151893
2 35	8.5673	85061	819528	.0018	53681	157617
34	8.5655	31380	661911	18	61605	522764
33	8.5636	69775	139147	18	69598	116491
32	8.5618	00177	022656	18	77659	822975
31	8.5599	22517	199681	18	85791	541733
2 30	8.5580	36725	657948	.0018	93994	187962
29	8.5561	42731	469986	19	02268	692880
28	8.5542	40462	777106	19	10616	004080
27	8.5523	29846	773026	19	19037	085885
26	8.5504	10809	687141	19	27532	919728
2 25	8.5484	83276	767413	.0019	36104	504527
24	8.5465	47172	262886	19	44752	857079
23	8.5446	02419	405807	19	53479	012459
22	8.5426	48940	393348	19	62284	024434
21	8.5406	86656	368914	19	71168	965890
2 20	8.5387	15487	403024	.0019	80134	929261
19	8.5367	35352	473763	19	89183	026984
18	8.5347	46169	446779	19	98314	391950
17	8.5327	47855	054829	20	07530	177986
16	8.5307	40324	876843	20	16831	560332
2 15	8.5287	23493	316511	.0020	26219	736146
14	8.5266	97273	580365	20	35695	925017
13	8.5246	61577	655348	20	45261	369488
12	8.5226	16316	285860	20	54917	335602
11	8.5205	61398	950258	20	64665	113464
2 10	8.5184	96733	836794	.0020	74506	017807
09	8.5164	22227	818987	20	84441	388588
08	8.5143	37786	430399	20	94472	591598
07	8.5122	43313	838801	21	04601	019078
06	8.5101	38712	819723	21	14828	090375
2 05	8.5080	23884	729348	.0021	25155	252595
04	8.5058	98729	476753	21	35583	981291
03	8.5037	63145	495462	21	46115	781159
02	8.5016	17029	714303	21	56752	186771
01	8.4994	60277	527532	21	67494	763308
2 00	8.4972	92782	764224	.0021	78345	107340

## Log Tangents

c	log. tan.			$\Delta^1$		
2 00	8.4972	92782	764224	.0021	78345	107340
1 99	8.4951	14437	656884	21	89304	847603
98	8.4929	25132	809281	22	00375	645828
97	8.4907	24757	163453	22	11559	197564
96	8.4885	13197	965889	22	22857	233061
1 95	8.4862	90340	732828	.0022	34271	518147
94	8.4840	56069	214681	22	45803	855156
93	8.4818	10265	359525	22	57456	083872
92	8.4795	52809	275653	22	69230	082509
91	8.4772	83579	193144	22	81127	768720
1 90	8.4750	02451	424424	.0022	93151	100633
89	8.4727	09300	323791	23	05302	077935
88	8.4704	03998	245856	23	17582	742965
87	8.4680	86415	502891	23	29995	181875
86	8.4657	56420	321016	23	42541	525795
1 85	8.4634	13878	795221	.0023	55223	952060
84	8.4610	58654	843161	23	68044	685472
83	8.4586	90610	157689	23	81005	999594
82	8.4563	09604	158095	23	94110	218092
81	8.4539	15493	940003	24	07359	716133
1 80	8.4515	08134	223870	.0024	20756	921809
79	8.4490	87377	302061	24	34304	317627
78	8.4466	53072	984434	24	48004	442033
77	8.4442	05068	542401	24	61859	891010
76	8.4417	43208	651391	24	75873	319703
1 75	8.4392	67335	331688	.0024	90047	444122
74	8.4367	77287	887566	25	04385	042898
73	8.4342	72902	844668	25	18888	959094
72	8.4317	54013	885574	25	33562	102079
71	8.4292	20451	783495	25	48407	449487
1 70	8.4266	72044	334008	.0025	63428	049214
69	8.4241	08616	284794	25	78627	021515
68	8.4215	29989	263279	25	94007	561158
67	8.4189	35981	702121	26	09572	939662
66	8.4163	26408	762459	26	25326	507622
1 65	8.4137	01082	254837	.0026	41271	697102
64	8.4110	59810	557735	26	57412	024135
63	8.4084	02398	533600	26	73751	091305
62	8.4057	28647	442295	26	90292	590422
61	8.4030	38354	851873	27	07040	305308
1 60	8.4003	31314	546565	.0027	23998	114678

## Log Tangents

c	log. tan.			$\Delta^1$		
1 60	8.4003	31314	546565	.0027	23998	114678
59	8.3976	07316	431887	27	41169	995134
58	8.3948	66146	436753	27	58560	024274
57	8.3921	07586	412479	27	76172	383913
56	8.3893	31414	028566	27	94011	363445
1 55	8.3865	37402	665121	.0028	12081	363315
54	8.3837	25321	301806	28	30386	898637
53	8.3808	94934	403169	28	48932	602963
52	8.3780	46001	800206	28	67723	232177
51	8.3751	78278	568029	28	86763	668576
1 50	8.3722	91514	899453	.0029	06058	925082
49	8.3693	85455	974371	29	25614	149654
48	8.3664	59841	824717	29	45434	629852
47	8.3635	14407	194865	29	65525	797618
46	8.3605	48881	397247	29	85893	234220
1 45	8.3575	62988	163027	.0030	06542	675436
44	8.3545	56445	487591	30	27480	016921
43	8.3515	28965	470670	30	48711	319833
42	8.3484	80254	150837	30	70242	816668
41	8.3454	10011	334169	30	92080	917368
1 40	8.3423	17930	416801	.0031	14232	215672
39	8.3392	03698	201129	31	36703	495761
38	8.3360	66994	705368	31	59501	739173
37	8.3329	07492	966195	31	82634	132041
36	8.3297	24858	834154	32	06108	072640
1 35	8.3265	18750	761514	.0032	29931	179270
34	8.3232	88819	582244	32	54111	298503
33	8.3200	34708	283741	32	78656	513792
32	8.3167	56051	769949	33	03575	154483
31	8.3134	52476	615466	33	28875	805231
1 30	8.3101	23600	810235	.0033	54567	315862
29	8.3067	69033	494373	33	80658	811689
28	8.3033	88374	682684	34	07159	704317
27	8.2999	81214	978367	34	34079	702961
26	8.2965	47135	275406	34	61428	826296
1 25	8.2930	85706	449110	.0034	89217	414896
24	8.2895	96489	034214	35	17456	144259
23	8.2860	79032	889955	35	46156	038479
22	8.2825	32876	851476	35	75328	484596
21	8.2789	57548	366880	36	04985	247650
1 20	8.2753	52563	119230	.0036	35138	486508

## Log Tangents

c	log. tan.			$\Delta^1$		
1 20	8.2753	52563	119230	.0036	35138	486508
19	8.2717	17424	632722	36	65800	770465
18	8.2680	51623	862257	36	96985	096729
17	8.2643	54638	765528	37	28704	908771
16	8.2606	25933	856757	37	60974	115656
1 15	8.2568	64959	741101	.0037	93807	112365
14	8.2530	71152	628736	38	27218	801214
13	8.2492	43933	827522	38	61224	614389
12	8.2453	82709	213133	38	95840	537722
11	8.2414	86868	675411	39	31083	135730
1 10	8.2375	55785	539681	.0039	66969	578055
09	8.2335	88815	961626	40	03517	667337
08	8.2295	85298	294289	40	40745	868666
07	8.2255	44552	425623	40	78673	340682
06	8.2214	65879	084941	41	17319	968443
1 05	8.2173	48559	116498	.0041	56706	398189
04	8.2131	91852	718309	41	96854	074113
03	8.2089	94998	644196	42	37785	277283
02	8.2047	57213	366913	42	79523	166877
01	8.2004	77690	200036	43	22091	823869
1 00	8.1961	55598	376167	.0043	65516	297350
0 99	8.1917	90082	078817	44	09822	653678
98	8.1873	80259	425139	44	55038	028645
97	8.1829	25221	396494	45	01190	682892
96	8.1784	24030	713602	45	48310	060802
0 95	8.1738	75720	652800	.0045	96426	853146
94	8.1692	79293	799654	46	45573	063722
93	8.1646	33720	735932	46	95782	080345
92	8.1599	37938	655587	47	47088	750480
91	8.1551	90849	905107	47	99529	461886
0 90	8.1503	91320	443221	.0048	53142	228672
89	8.1455	38178	214549	49	07966	783191
88	8.1406	30211	431358	49	64044	674227
87	8.1356	66166	757131	50	21419	372003
86	8.1306	44747	385128	50	80136	380543
0 85	8.1255	64611	004585	.0051	40243	358038
84	8.1204	24367	646547	52	01790	245836
83	8.1152	22577	400711	52	64829	406826
82	8.1099	57747	993885	53	29415	774020
81	8.1046	28332	219865	53	95607	010181
0 80	8.0992	32725	209684	.0054	63463	679539

## Log Tangents

c	log. tan.			$\Delta^1$		
0 80	8.0992	32725	209684	.0054	63463	679539
79	8.0937	69261	530145	55	33049	432601
78	8.0882	36212	097544	56	04431	205278
77	8.0826	31780	892266	56	77679	433649
76	8.0769	54101	458617	57	52868	285767
0 75	8.0712	01233	172850	.0058	30075	912153
74	8.0653	71157	260697	59	09384	716740
73	8.0594	61772	543957	59	90881	650234
72	8.0534	70890	893723	60	74658	528102
71	8.0473	96232	365621	61	60812	375626
0 70	8.0412	35419	989995	.0062	49445	802741
69	8.0349	85974	187254	63	40667	411726
68	8.0286	45306	775528	64	34592	241118
67	8.0222	10714	534410	65	31342	249700
66	8.0156	79372	284710	66	31046	844822
0 65	8.0090	48325	439888	.0067	33843	459877
64	8.0023	14481	980011	68	39878	186346
63	7.9954	74603	793665	69	49306	466530
62	7.9885	25297	327135	70	62293	853883
61	7.9814	63003	473252	71	79016	848743
0 60	7.9742	83986	624509	.0072	99663	818372
59	7.9669	84322	806137	74	24436	011363
58	7.9595	59886	794774	75	53548	677914
57	7.9520	06338	116860	76	87232	309100
56	7.9443	19105	807760	78	25734	010133
0 55	7.9364	93371	797627	.0079	69319	024847
54	7.9285	24052	772780	81	18272	431174
53	7.9204	05780	341606	82	72901	030433
52	7.9121	32879	311173	84	33535	456781
51	7.9036	99343	854392	86	00532	537336
0 50	7.8950	98811	317056	.0087	74277	938448
49	7.8863	24533	378608	89	55189	139420
48	7.8773	69344	239188	91	43718	781936
47	7.8682	25625	457252	93	40358	451807
46	7.8588	85267	005445	95	45642	959513
0 45	7.8493	39624	045932	.0097	60155	198082
44	7.8395	79468	847850	99	84531	671191
43	7.8295	94937	176659	102	19468	801961
42	7.8193	75468	374698	104	65730	154148
41	7.8089	09738	220550	107	24154	723482
0 40	7.7981	85583	497068	.0109	95666	488921

## Log Tangents

c	log. tan.			$\Delta^1$		
0 40	7.7981	85583	497068	.0109	95666	488921
39	7.7871	89917	008147	112	81285	452912
38	7.7759	08631	555235	115	82140	448825
37	7.7643	26491	106410	118	99484	054521
36	7.7524	27007	051889	122	34710	027647
0 35	7.7401	92297	024242	.0125	89373	774496
34	7.7276	02923	249746	129	65216	486700
33	7.7146	37706	763046	133	64193	736187
32	7.7012	73513	026859	137	88509	519729
31	7.6874	85003	507130	142	40657	004610
0 30	7.6732	44346	502520	.0147	23467	566626
29	7.6585	20878	935894	152	40170	158592
28	7.6432	80708	777302	157	94463	641035
27	7.6274	86245	136267	163	90605	501934
26	7.6110	95639	634333	170	33521	468521
0 25	7.5940	62118	165812	.0177	28941	986160
24	7.5763	33176	179652	184	83573	575742
23	7.5578	49602	603910	193	05315	933126
22	7.5385	44286	670784	202	03539	682049
21	7.5183	40746	988735	211	89445	519734
0 20	7.4971	51301	469001	.0222	76534	016991
19	7.4748	74767	452010	234	81228	011415
18	7.4513	93539	440595	248	23708	742987
17	7.4265	69830	697608	263	29056	596374
16	7.4002	40774	101234	280	28834	330347
0 15	7.3722	11939	770887	.0299	63326	963634
14	7.3422	48612	807253	321	84779	813685
13	7.3100	63832	993568	347	62195	557596
12	7.2753	01637	435972	377	88643	043891
11	7.2375	12994	392081	413	92760	168829
0 10	7.1961	20234	223252	.0457	57558	427395
09	7.1503	62675	795857	511	52583	170224
08	7.0992	10092	625633	579	92000	556656
07	7.0412	18092	068977	669	46836	065712
06	6.9742	71256	003265	791	81285	338857
0 05	6.8950	89970	664408	.0969	10045	155425
04	6.7981	79925	508983	.1249	38761	611806
03	6.6732	41163	897177	.1760	91276	915327
02	6.4971	49886	981850	.3010	30006	379768
01	6.1961	19880	602082			